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ICO Secretary General

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PART I:

ICO TRIENNIAL REPORT

TRIENNIAL REPORT OF THE ICO TO IUPAP (2008-2011)

Introduction:

The International Commission for Optics (ICO) was created in 1947. It is an Affiliated Commission of the International Union of Pure and Applied Physics (IUPAP), and a Scientific Associate of the International Council for Science (ICSU) since 2005. As it is clear from its name, its objective is to contribute, on an international basis, to the progress and diffusion of knowledge in the field of optics and photonics. ICO activities concentrate in educational and scientific events, traveling lecturers, periodical publications and reports, awards and the corresponding honors. All these activities are addressed to the worldwide community in optics and photonics, academia, research institutions and industry, and with a particular emphasis in all initiatives in developing regions of the world.

Maria L. Calvo,
ICO President 2008-2011

The structural organization of ICO has an assembling operational basis led by the General Assembly, which is held every three years. The ICO General Assembly is constituted by the corresponding representatives of the ICO Territorial Committees. At the present state, ICO has a total of fifty one Territorial Committees, among which two of them are Associate Members. The geographical distribution of the Territorial Committees covers twenty seven European countries, three Northern American countries, six Southern American and Caribbean countries, eleven Asian-Pacific countries and four African countries. According to the assignment of units and votes, the Territorial Committees representativeness constitutes a total of one hundred and thirteen votes via the corresponding representatives of each territory. This extensive geographical representation inside ICO gives a very good wide international scope for the projection of its current activities in optics and photonics, in all the represented areas. However, an important effort is still needed to assure that this international projection be even more representative in critical areas of the world needing a clear input for progress and creation of local technologies, so as to avoid a dependence on external technologies that creates the obvious economical erosion.

In addition to the membership through the Territorial Committees, ICO has at present other members who are representatives of certain International Societies (IS). The approval of this new membership took place at the General Assembly is San Francisco (USA) in 1999. These IS have a total of six appointed Vice-Presidents representing: African Laser, Atomic and Molecular Physics Network (LAM), European Optical Society (EOS), IEEE Photonics Society, International Society on Optics Within Life Science (OWLS), Optical Society of America

(OSA) and the International Society for Optics and Photonics (SPIE). The presence of these international societies in ICO assures at the time an important input for the presence of less represented areas, as it is the case of LAM as an African Network created in 1991 during the first international workshop on Lasers and Applications held in Dakar, Senegal, with the participation of more than twenty African countries. Moreover, much wider and far reaching insights on the current emerging topics in optics and photonics, related contacts with industries and entrepreneurship programs are connected with the particular initiatives of the IS and under the ICO umbrella coverage.

Ending with this brief description of ICO structure and in order to give a more strategic approach, one may define ICO as "The United Nations of Optics", as it was stated by the former ICO President Anna Consortini.

As for the presence of ICO in other international bodies, the former is now having a place at the ICSU structure as an Associate Member. ICO was admitted as an ICSU Associate Member at the 28th ICSU General Assembly that was held in China in October 2005. The first attendance of ICO to ICSU General Assembly (GA) took place at the 29th one held in Maputo, Mozambique in October 2008. ICSU is an international body representing the world of science. It is headquartered in Paris, and is the largest non-governmental organization in world's scientific community and as such, it is linked to UN organization. The ICSU interests owed to many disciplines in the world of science, not necessarily restricted to fundamental science, and so they cover many interdisciplinary disciplines including science and humanities. This gives ICO an opportunity to connect with this diversified world of science and to assure the presence of the optics and photonics activities inside this complex universe of science and technology.

ICO activities 2008-2011

Prior to summarize the main activities of ICO during the term 2008-2011, and by including the most burning topics at this stage in the world of optics and photonics, I would like to focus your attention on a unique event that took place in the year 2010. This was the celebration of the 50th anniversary of the invention of the laser, which was first demonstrated by Theodore H. Maiman, in 1960 at Hughes Research Laboratories, in Malibu, California, USA. For the many activities that took place at this unique occasion, we have to mention the sum of joint efforts from three of the ICO IS members: OSA, IEEE Photonics and SPIE along with the American Physical Society (APS) under the LaserFest definition. Through a wide-range of events and activities, LaserFest has told the story of the pioneering development of the laser and has helped to explore how scientific research leads to technological innovation that can impact and transform all segments of society. LaserFest events and activities were designed for the general public, students, educators, and legislators and have contributed to the dissemination and divulgation of the world of optics all over many local and international forums. ICO has supported and endorsed activities inside this anniversary, the LaserFest and other similar activities, as organized by Territorial Committees and IS. ICO Newsletter published a series of articles with relevant contributions by pioneers in laser science.

To add a brighter color to this piece of art, the 2009 Nobel Prize in Physics was accorded to Charles Kuen Kao for groundbreaking achievements concerning the transmission of light in fibers for optical communication, and to Willard S. Boyle and George E. Smith for the invention of an imaging semiconductor circuit – the CCD sensor.

As part of the ICO activities and under the condition of an ICSU Scientific Associate, the President of ICO participated at the 29th ICSU Triennial GA that was held in Maputo, Mozambique, 13-25 October 2008. As mentioned above, this was the first occasion for ICO to attend an ICSU GA. As a proposed special activity, a poster containing the wide and general information on ICO and its organization and activities was displayed there.

During the triennium 2008-2011, ICO has worked, through its Territorial Committees and International Society Members, to promote optics and photonics in the different regions of the world on the basis of a variety of programs and activities. Perhaps the most visible events are the triennial Congresses of ICO that consist of a scientific conference and the General Assembly of the members. The ICO-21 Congress in Sydney, Australia in July 2008 was a very successful one, with more than six hundred participants. Sudan and Tunisia were admitted as new Members, making the total ICO membership count 49 Territorial Members and 2 Associate Members. With the admission of these two new members, the African Territorial Committees of ICO have increased up to a total of four, by including Ghana/West Africa, a member since 1993, and Morocco as an Associate Member. ICO has been looking for additional members, especially from developing regions, and it is likely that new members will be formally admitted in the next Congress (ICO-22) in August 2011 in Puebla, Mexico.

In the years between two successive General Congresses, the main ICO conferences are the Topical Meetings, normally also containing the annual ICO Bureau meeting. The ICO Topical Meeting on "Emerging Trends and Novel Materials in Photonics" was held in October 2009 in Delphi, making it the first large scale ICO conference in Greece, under the support of the Hellenic Optical Society (HELIOS). The conference combined also a number of special sessions and short-courses organized under the auspices of the European Science Foundation (ESF) COST MP0604 "Optical Micro-manipulation by Non-linear Nanophotonics" and MP0805 "Novel Gain Materials and Devices Based on III-V-N Compounds". ICO is having among its priorities to promote new key topics that can be of interest for the forthcoming young researcher's generation and to open new career curricula having industry connections in new technologies. With this intention an ICO/EOS Topical Meeting on Optics and Energy was held, as a first join venture with the European Optical Society. The meeting was held in Paris, 28-29 October 2010 and as part of the Topical Meetings shaping the Annual Meeting of the EOS (EOSAM). The ICO Bureau Annual Meeting took place at that occasion at the new location of the Institute d'Optique in Palaiseau, Paris region.

ICO is having among its general policy to enhance and support activities in Latin-America. For this purpose, ICO supported the VI Technolaser and II Optics, Life and Heritage 2009 meeting, join together for the first time and held in April 2009 in La Havana, Cuba. At that occasion an international exhibition in Holography took place under the lemma "The Holography in Science, Art and Heritage. In September 2010 ICO actively participated in the 7th Ibero-American Conference (RIAO) and 10th Latin-American Meeting on Optics, Lasers and Applications (OPTILAS). In that event, the Ibero-American Network for Optics (RIAO) was officially launched.

ICO is also actively involved in two topical conference series. One on them is the Information Photonics (IP; formerly Optics in Computing, OiC) series. A meeting of this series was held in 2008 in Hyogo, Japan, organized by the Information Photonics Group of the Optical Society of Japan (OSJ). The other conference series is Education and Training in Optics and Photonics (ETOP), the only truly bi-annual international conference series focusing entirely on optics and photonics education and training at all levels. ETOP is the international forum for

leading educators in optics and photonics all over the world. Since IEEE-LEOS joined in as a new permanent sponsor (the original ones are ICO, SPIE, and OSA), a revised Memorandum of Understanding for the ETOP series was signed late in 2010. The 11th ETOP conference was organized in Saint Asaph, North Wales, United Kingdom, in July 2009. One of the remarkable agreements among ETOP partners is the feature that all ETOP conferences papers (of all meetings since its inception in 1988) are freely available online to everyone.

For the term 1st October 2008 to 2011 (update to the actual date April 2011), ICO has been involved in a total of 29 conferences, many of them in developing countries (a complete list is in the ICO Green Book, Part I). As a resume: 7 endorsed meetings without financial support (held as 3 in Europe, 3 in Asia and 1 in North-America); 9 endorsed meetings with financial support (2 in Europe, 3 in Asia, 1 in North-America, 2 in Latin-America and 1 in Australia; and 13 co-sponsored meetings (held as 7 in Europe, 1 in Africa, 2 in North-America and 3 in Latin-America). In all cases, the meetings were accomplishing the highest international standards.

Every year, in February, the Winter College on Optics was organized at the Abdus Salam International Center for Theoretical Physics (ICTP), Trieste, Italy, with the subjects including nano-photonics for life sciences (2008), optics in environmental science (2009), optics and energy (2010) and optics in imaging science (2011). Through ICTP contact networks, the Winter Colleges reach efficiently students and researchers in developing regions. Preparatory schools were also organized prior to the actual Colleges. The so-called TSOSA (Trieste System of Optical Sciences and Applications) group, which combines local and international optics organizations and bodies, had every year an advisory meeting during the Winter College. The goal is to increase the ICTP in-house activities in optics, while maintaining the valuable initiatives (such as the sandwich doctoral programs) that benefit education and research of optics in developing regions. A related activity is the hands-on global ALOP (Active Learning in Optics and Photonics) program, spearheaded by Minella Alarcon of UNESCO and aimed at high school and university physics teachers. Since 2007, ICO also participates formally in this novel activity, with enhancing programs in Latin-America.

The development of optics and photonics in the term 2008-2011, and some comments toward the future

As an initial and labeling insight on this three years term, one may say that the world has experienced a critical period of economic crisis affecting all markets and geographical areas. However, despite this global economic crisis, the photonics market is continuing its rapid expansion with clear examples as those for energy-efficient lighting, renewable energies such as photovoltaic and solar cells, information and communications, optical components and systems, healthcare and life science, as fast, high-resolution imaging tool for clinical diagnostic systems (see Figure 1). Annual growth rate in the photonics market is expected through 2014. As a key technology, photonics is at home in many diversified industries and it is part of the future of global economy. In that future, technologies will benefit in a way or another the quality of life of young generations. As a determinant factor, the expected continuous growth and expansion will converge with the phenomenon of the world population growth.

To support the above statements, one may consider current statistics provided by UN and UNESCO, for world population and growth of the percentage of young people who will be in

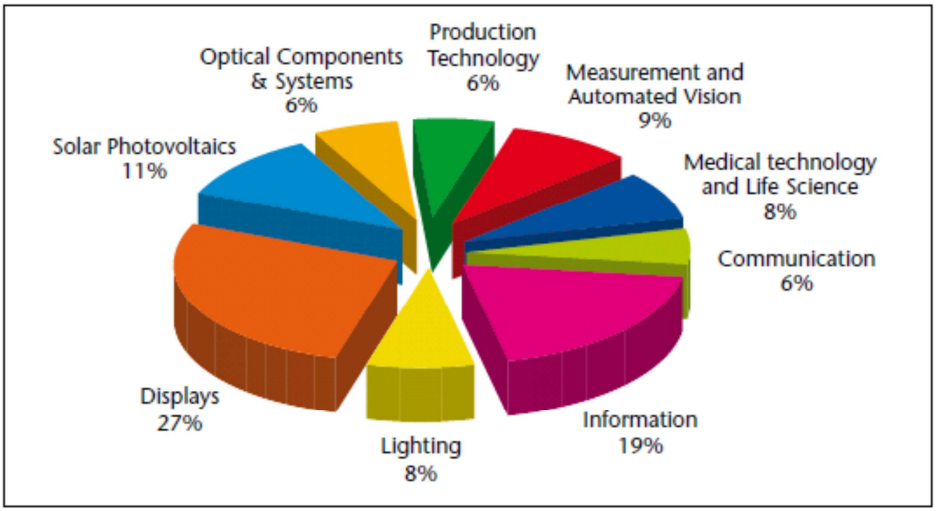


Figure 1. *Photonics World Market distribution for the year 2008 (Courtesy: OPTECH Consulting)*

the future in a position to afford a professional career in technological fields. Thus, in 2050, the world most populous countries will be located in Eastern Asia, followed by some located in Sub-Saharan Africa and South-America. These indicators appear to confirm an analogous trend previously reflected by 2009 UNESCO data. As an overall panoramic, the world population growth is now almost entirely concentrated in poorer countries in the world. Together with these data, we may cite that the young population (with ages in the range between fifteen and twenty four years old) and calculated as an average of 1.2 billions, will continue to be concentrated in Africa and Asia. In this very large group of young population, one expects, in the near future, that some percentage will orient their professional careers towards the world of science, engineering and technological training. As an example, by assuming just that a 0.01% of this global young population be oriented towards science and technology, that will represent about 120,000 of young researchers and students in our field in 2050 located in Asia/Pacific, Africa and Latin America and Caribbean regions, to be compared to about 10,000 of young people located in more developed countries.

In the near future, it will be especially important for photonics companies and related industries, to maintain the edge in innovation and to uphold technological leadership and entrepreneurship in the field. For these key tasks, fundamental and applied research may be developed inside the current topics while other new emerging proposals will appear in the scene.

Let us review some current outstanding topics.

Classical and fundamental optics

Optics is certainly an ancient science. From a historical perspective its development throughout centuries was addressed to the needs of humans to recognize our environment, to perceive more and more small objects, needing lenses, mirrors and optical components and to

better define distant objects. During the Renaissance, the optical sciences flourished. The great discovers of Kepler related to visual processes, "paved the way" for the creation of modern optics. Nowadays, the concept of optics touches a very broad range of phenomena involving the propagation of light and the interaction of light with matter. The development of optics in the 20th C. gave rise to new emerging fields determining the current vast applications. The latter are based upon fundamental concepts, which are key ones owing to the very nature of light. During the first decade of the 21st C., classical optics has seen contributions in the theoretical description for the spatio-temporal coherence of electromagnetic light, spatial and temporal characterization of light beams and luminous sources, polarization optics, light scattering, singular optics,interferometry, diffraction theory. These essential theoretical analysis concern practical applications such as radiometry and photometry, interaction of light with photonics devices, interaction of light with biological tissues, optical communications systems, atmospheric optics, metrology and sensor technologies, to give some relevant examples. The key conceptual aspect of these classical studies concerns the behavior of light as a random field and, therefore, is related to a statistical description of the electromagnetic waves. Then, we can consider that it associates the field of optics to those of physics and mathematics.

Optical Information Processing and Imaging Science

In reality, both the diffraction of light as well as the scattering of light arise essentially from the same phenomenon, basically described by the same laws contained in Maxwell's equations. Therefore, the distinction among them is in a certain sense mostly conventional or may be imposed for historical reasons linked to their observation and detection. In any case, the formulation of these phenomena leads to optical processing techniques and image formation in many contexts, from astronomy to diffractive tomography and diffused waves. The interpretation of the Fourier transform of an image has given a more general interpretation to the solution of the problems in this field. An important amount of research is done in subjects such as: Computing imaging, Wigner optics, imaging techniques for sensors, optical microscopy, super-resolution, ocular imaging and applications to adaptive optics, fluorescence image techniques, bases and applications to color displays, optical and digital holography, and many applications addressed to various fields in science and technology.

As a summary, optical interference phenomena are applied in many technologies such as communications, imaging and in ultra-fine measurement, and perhaps find their cleverest use in holography. Optics research combined with novel engineering continue to generate useful techniques as those mentioned above, which are benefiting fields as varied as medicine, astronomy and defense. The impact of the imaging science was demonstrated in 2009 by the Nobel Prize in Physics accorded to Williard S. Boyle and George E. Smith for the invention of an imaging semiconductor circuit– the CCD sensor. In these devices, there are three key technologies: semiconductor, silica and metal-oxide semiconductors (MOS). The use of CCD cameras is nowadays dramatically extended to the many diversified areas of science and technology. As an example of major applications, several well developed, Adaptive Optics (AO) technologies are now rapidly expanding into a host of other applications, from telescopes, microscopy and eye surgery to biometrics, DVD players, and even outside TV broadcasting.

Laser physics and laser technologies

The theoretical foundations of the laser emission were established by Albert Einstein in 1917 with the formulation and prediction of the stimulated emission of radiation.

Experimentally, the first microwave amplification for stimulated emission of radiation was developed on the 1950s, and it was not until the 1980s that laser applications really took off. We can consider, for example, 1980 as starting the era of semiconductor lasers. The semiconductor-chip technology has been and continues to be a progressing and broadening technology leading to the fabrication of tiny, robust semiconductor lasers that are now ubiquitous – found in supermarket barcode readers, CD players and computer printers. Laser technology and applications continue to progress and broaden, as physicists and device engineers design ever more sophisticated semiconductor structures. Quantum cascade lasers (QCL) are among recent significant developments that look to have a variety of uses. One important physics tool is that the high intensity of laser light allows researchers to study extreme optical responses – so-called nonlinear effects. One of the first applications of QCLs has been in spectroscopy, in detecting trace amounts (less than one part per billion) of environmentally significant and polluting atmospheric gases.

As a resume, exploring and harnessing the behavior for future optical technologies continue to be a major goal in photonics research.

Lightning and displays

The new generation of organic light-emitting-diodes (OLED) has revolutionized the world of the lighting systems. The OLED is a display technology based on the use of organic polymers as the semiconductor materials in Light-Emitting Diodes (LED). The organic materials used in OLED may include “small” molecules or “macro” polymers.

Research and development in the field of OLEDs is proceeding rapidly and may lead to future applications in heads-up displays, automotive dashboards, billboard-type displays, home and office lighting and flexible displays. Moreover, OLED-based luminescent sensors for numerous potential applications, such as monitoring inorganic gases and biological compounds and organisms, are now under development. Much of the applied research being done in this area is focused on extending OLED lifetimes and improving the manufacturing processes to make them more competitive with standard LED technology.

Optics communication and information technologies

The Nobel Prize in Physics of the year 2009 was shared by the two previously mentioned scientists, W. S. Boyle and G. S. Smith and by Charles K. Kao. In the former article of Kao (co-authored with George Hockman) and published in 1966, it was demonstrated that the principal cause for radiation losses in the transmission of signals in an optical fiber was due to the presence of impurities in its structure. This cause was not strictly related to a physical property of the fiber as a transmission system. Kao and Hockman estimated the reduction of transmission losses when impurities are eliminated. The actual reduction could drop to 20 dB/Km (for λ = 850 nm), or even by zero. This discovery was the starting point for the 20th C. revolution of the optical communications technologies. With the combination of laser amplifiers, fiber optics revolutionized global telecommunications and ultimately made the internet possible. The association of optical communications and semiconductor devices suggested that light could be used not only to send signals but also to make fast optical processing possible. This aspect has given rise to optoelectronics. The optimization of these devices has led to new merging structures as the photonics crystals.

In the applications, one may include not only ultrafast optical communications and new imaging techniques, but also energy conversion and transmission and, further into the future, quantum information technology relying on controlling single photons of light.

Optical materials

The search for new structures with unique optical and physical properties, and, in a sense, connected with the research in photonic crystal has provided new class of materials with unique properties, namely the so-called metamaterials. The later belong to the class of composite materials designed, with features which show electric and magnetic responses to light analogous to those of atoms to produce bulk optical effects such as refraction. The remarkable property of metamaterials is that they can exhibit negative refraction, and so have the potential to control light in unexpected ways. Recently, metamaterials have been designed at the nanoscale, offering huge potential for optoelectronics and other technologies.

Another emerging research field connected to new nano-structured materials is related to plasmonic effects. The possibility for operate under a sub-wavelength structure condition provides a bridge for the 'scale-gap' between photonics and electronics.

The progress in the procedures for achieving optical data storage is connected with the progress in the obtention of new photomaterials, with large definitions inside inorganic-organic composites, with an interest for enlarging the wavelength range of operation, resolution limits and cost reductions.

Light-Matter interaction

Many advances have been achieved in this field due to the interaction of light with transparent media and modification of the speed of light. In the 1990s, the first experiments to put the brakes on light propagation were carried out. The principle behind slow light relates to the familiar concept of refraction. When light waves (electromagnetic radiation) pass through a transparent medium, interactions with the electrons cause the waves to spread out, or disperse, over a range of slightly different frequencies, each of which moves at a different 'phase' velocity. The different-frequency waves interfere with each other to create larger groups of waves that form an envelope, which travels more slowly and tends to bend in the directions that the individual slower phase-velocity waves are moving – hence light is slowed down and bent. Very promising applications in optical telecommunications, optoelectronic devices, optical networks, optical information processing and spectroscopy, as some of current interest are now enhancing the interest of this research subject.

As a general conclusion, optics and photonics are truly coming of age.

Maria L. Calvo
ICO President
Celebrating 50 years of the laser

IN MEMORIAN OF GIULIANO TORALDO DI FRANCIA

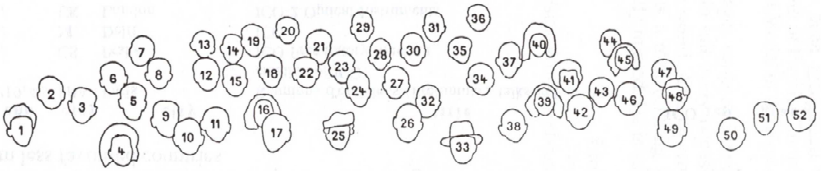
THE ICO MOURNS THE PASSING OF A PIONEERING ICO LEADER

Giuliano Toraldo di Francia in the Dolomiti mountains. (Courtesy of his family)

Giuliano Toraldo di Francia, professor emeritus of physics at the University of Florence, and an ICO pioneer, died in Florence on 26 April 2011, aged 94. After gaining a degree in physics from Florence University in 1939, he joined the National Institute of Optics, now INO-CNR, where he started his research. In 1943 he moved to the Ducati company, where during the next seven years he designed optical systems. In 1951 he came back to INO as professor of optics, until 1958. During that period he wrote one of his most translated scientific books, Electromagnetic Waves (1953) and a few years later, in 1958, the book La diffrazione della luce was published, gaining noticeable international attention.

Toraldo di Francia also went to America, spending two years at the University of Rochester as professor of optics before returning to Europe, when in 1959 he was hired as chair of optics at the University of Florence. In 1963 he moved to the chair of higher physics, a position he held until retirement in 1991. From 1968–73 he served as president of the Italian Physics Society (SIF). From 1976–81 he directed the University Institute of Higher Physics, which he

founded. After his return from the US he collaborated with the Institute of Electromagnetic Waves of the National Research Council of Italy, IROE-CNR (now IFAC-CNR). He promoted research on microwaves and optics and, very early after the demonstration of the laser, he fostered the CNR programme "Maser and Laser", which introduced laser activity to Italy. From 1970–81 he was also IROE's director.



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38. Javurek (K.).
39. Mme Dratz (M.).
40. Mlle Bavay.
41. Mlle Touvay.
42. Hrdlicka (J.).
43. Dratz (M.).
44. Véret.
45. Mlle Rossignol (N.).
46. Jurek (B.).
47. Lennuier (R.).
48. Mlle Flamand (F.).
49. Monnet.
50. Havelka (B.).
51. Bayle (A.).
52. Arnulf (A.).

The photograph was taken at the "Réunions d'Opticiens" in Paris, October 1946, where the creation of an International Commission for Optics was discussed. The list of persons indentified is from the Proceedings volume (editions de la Revue d'Optique, 1950).

Toraldo di Francia was the last surviving member of the ICO founders from Prague in June 1947. In preparation for the first plenary session of ICO in Amsterdam in July 1948, the Italian delegation prepared a report on diffraction theory, under the responsibility of Toraldo di Francia. He served two terms as ICO vice-president and was president from 1966–69.

Toraldo di Francia was a great scientist who made outstanding contributions to the field of electromagnetic waves and optics. One of his first results in diffraction by surfaces was in 1941 with the formulation of the "Inverse interference principle", a particular case of which (diffraction by plane surfaces) gave rise to Fourier optics. Other seminal results came from the demonstration of the existence of evanescent waves in diffraction phenomena, extensive studies of the quasi-Cherenkov effect based on evanescent waves, and deep investigation of geodesic lenses. Working on antennas, he introduced the concept of super-resolution, showing that with suitable filters in the pupil plane of an aperture (Toraldo filters) it is possible to increase the resolution in a given direction, beyond the diffraction limit. Another of his innovative contributions to optics was the introduction of the "Degrees of information of images", where he offered a new approach based on information theory and on information content of the images, to the classical concept of resolving power.

Photo from the ICO meeting in 1947 (courtesy of Pierre Chavel). Toraldo is clearly recognizable: he is in the second row beyond the important person with the medal and has a clear dress.

Toraldo di Francia had a great interest in philosophy and its relationship with physics. His book The Investigation of the Physical World, in which he presented physics methods to the scholars of philosophy, was also published in English. In 1984 he founded the Forum for the Problems of War and Peace, which is still active. His passion for music led to him to be involved in the School of Music of Fiesole, and he also wrote the "libretto" for Talgor, an opera by Riccardo Luciani. Toraldo di Francia was an OSA Fellow and Honorary Member of the Italian Society of Optics and Photonics, SIOF. Some of the recognitions that he received include

the Young Medal of the Institute of Physics, the OSA C. E. K. Mees medal, and the Gold Medal of the Ministry of Public Instruction of Italy.

Anna Consortini (University of Florence) and
Giancarlo Righini (Istituto di Fisica Applicata "Nello Carrara"), Florence, Italy

ICO MOURNS THE LOSS OF SANG SOO LEE (1925-2010)

Sang Soo Lee known as the "Father of Optics" in Korea passed away on May 7th, 2010, in Korea. He was 84. Dr. Lee received a B.S. in Physics from Seoul National University in Korea (1949) and a Ph.D. from Imperial College of Science and Technology, University of London, UK (1959). Being the first Ph. D. in Optics in Korea, Dr. Lee devoted his life to lay the foundation for optical science and engineering in Korea for more than four decades as an educator, researcher, and administrator in science policy.

Sang Soo Lee, "Father of Optics" in Korea

From 1960-70, he worked at the Korea Atomic Energy Research Institute (KAERI), as Head of the Physics Research Division (1960-67), and then as Director (1967-70). After a year as Director General of the Office of Korea Atomic Energy (1970-71), Dr. Lee went to Korea Advanced Institute of Science and Technology (KAIST) as the first President to establish a new government funded graduate school. From 1989-91, he again served a term as President of KAIST. He played a pivotal role in founding the Optical Society of Korea (OSK) in 1989 and served as its first president. During his teaching career, Dr. Lee mentored 50 doctoral and more than 100 masters' degree candidates in the areas of laser physics, wave optics, and quantum optics. Many of his former students have become leaders in academia, government-funded research institutes, and industry both in Korea and abroad. He published more than 250 technical papers and authored five textbooks, including "Wave Optics", "Geometrical Optics", "Quantum Optics", and "Laser Speckles and Holography".

Dr. Lee was an active member in the international scientific community. In addition to his pioneering scholastic achievements at KAIST, he served as a Vice President of the International Commission for Optics (ICO), a Council Member of the Third World Academy of Sciences, and a Council Member of the UN University, serving as an ambassador for the optics community, which showed a significant example of how a developing country like Korea can serve the international optics community.

Dr. Lee was a Fellow of the International Society for Optical Engineering (SPIE), the Optical Society of America (OSA), and the Korean Physical Society (KPS). He was the recipient of many awards and honors, including the National Order of Civil Merit (the Presidential Medal of Honor from the Republic of Korea) in 2000, the Songgok Academic Achievement Prize, the Presidential Award for Science, and the Medal of Honor for Distinguished Scientific Achievement in Korea. In 2006, he was awarded OSA's Esther Hoffman Beller Medal in recognition of his outstanding contributions to optical science and engineering education.

LASERFEST

ICO PARTENERED THE CELEBRATION OF THE 50 YEARS OF THE LASER

LASERFEST
CELEBRATING 50 YEARS OF LASER INNOVATION
WWW.LASERFEST.ORG

Charles and Frances Townes, both in their nineties, seated on a larger-than-life-size reproduction of the real park bench in Franklin Park, Washington DC, where Townes, sitting outside in the cool of a morning nearly 60 years earlier, waiting for his colleague and future brother-in-law Arthur Schawlow to awaken in their shared hotel room, invented the concept of the ammonia beam maser and jotted down a quick calculation of the idea in his notebook. The statue sits in the downtown plaza of the pleasant small southern town of Greenville, South Carolina, where Townes was born and raised.

ICO signed in August 2009 an agreement with OSA, SPIE and the APS for partnering Laserfest (see pages 21 and 22). Most ICO Territories held activities in celebration of the 50th anniversary of the laser. The ICO Secretariat prepared a series of articles on the History of Lasers that was published in the ICO Newsletter. The series was inaugurated with a special contribution by Anthony E Siegman, author of the monumental laser textbook and reference work Lasers (University Science Books, 1986), and recipient of the Schawlow Medal of the Laser Institute of America. In his article entitled "The

history of how the laser came to be" (ICO Newsletter 81, October 2009), he presented his personal view on the early development of the laser, starting.

In his words: "In May 1960 the first successful man-made laser device, a flashlamp-pumped ruby laser with an intense deep red 6943 Angstrom wavelength, flashed into operation, almost on its first try. This took place in a parquet-floored laboratory in the recently opened Hughes Research Laboratories high on a hillside above Malibu, California, looking down on the Pacific beaches and movie stars' homes."

Anthony shared with us the fabulous photo of Charles and Frances Townes shown in the last page. The series continued with a contribution entitled "Why was the laser invented so late?" by Mario Bertolotti, Professo of the University of Roma, La Sapienza, Italy, and author of a comprehensive book on the history of lasers. He mentions that "probably one reason for not pursuing research in this area was the fact that there was no particular need for optical sources different from the existing ones. A second reason was that the basic properties of the emission processes were not yet completely understood. A third one could be that people were so used to deal with equilibrium processes that they considered unrealistic a non-equilibrium device like the laser".

Donna Strickland

In April April 2010 Prof. Alexandr M. Leontovich from the Lebedev Institute of Physics, Russian Academy of Sciences, contributed with his remembrances on "How the first Moscow's laser was built", when Mikhail Galanin, chief of the laboratory, he, and a woman scientist Zoya Chizhikova, began working on this problem. His recollections were complemented by P G Kryukov, one of N G Basov's graduate students at the time immediately following the discovery of the ruby laser (ICO Newsletter 84, July 2010). He highlights Prof. Lethokov's great impact on the further development of optics research in the former Soviet Union.

In October 2010 William Silfvast, a laser pioneer and co-inventor of many of the first heated metal-vapor lasers, shared with us his early experiences with Lasers, while working as a doctoral student shortly after the announcement of the first operational laser. The series closed with the contribution "Chirped Pulse Amplification turns 25!". by Donna Strickland, who is currently an ICO Vice President and a worldwide recognized pioneer in the area of ultrashort laser pulse generation.

MEMBER CONTRIBUTIONS

THE U.S. ADVISORY COMMITTEE TO THE INTERNATIONAL COMMISSION FOR OPTICS (USAC/ICO)

As outlined in its constitution, the purpose of the United States Advisory Committee is to effect appropriate United States participation in the International Commission for Optics (ICO) through the National Academy of Sciences[1], which adheres to the Union on behalf of the United States.

The USAC/ICO operates under the auspices of the Board on International Scientific Organizations, Policy and Global Affairs Division of the National Academy of Sciences. It is one of more than 20 national committees housed within the Board on International Scientific Organizations (BISO). Each of these national committees represents U.S. science to an international scientific union or organization. By being housed together in BISO, the committees have the opportunity to interact and collaborate across disciplines on activities or issues that are of interest to them. The committees also have linkages to the disciplinary units of the National Academies to which they are most closely related. In the case of USAC/ICO, that linkage is with the U.S. National Committee for Pure and Applied Physics and the National Materials and Manufacturing Board (NMMB).

The USAC/ICO serves as a focal point for the broad U.S. optics and photonics community. The primary goals of the USAC are to:

a. Represent the National Academies and sponsoring societies to the ICO;
b. Promote the advancement and dissemination of scientific and technical knowledge in all fields of optics and photonics;
c. Provide a broad, balanced U.S. participation in the activities of ICO;
d. Strengthen U.S. optical science and technology as a contributor to the international community; and
e. Inform the U.S. optics and photonics communities of research carried out elsewhere in the world.

The committee meets twice a year, once in the spring and once in the fall. However, more recently, the standard of practice has been one in-person meeting to be followed by a conference call meeting. There are wide-ranging issues that are usually discussed during committee meetings-mostly in adherence to the primary functions of USAC/ICO, which include:

a. Fulfilling national duties as required by the ICO;
b. Advise the National Academies and sponsoring societies on all matters concerning ICO and USAC-ICO;
c. Plan and sponsor meetings of the USAC-ICO, and serve as the organizing body for General Assemblies of ICO when they are held in the United States.;
d. Recommend for nomination to the National Research Council (NRC) persons to represent the optics and photonics community at the General Assemblies, and U.S.

[1] The National Academies consist of four organizations: the National Academy of Sciences, the National Academy of Engineering, the Institute of Medicine, and the National Research Council. The official U.S. adhering body to ICO is the National Academy of Sciences, although day-to-day operations are carried out by the National Research Council.

citizens or permanent residents who would be willing to serve in positions in the ICO Bureau; and

e. Carry out duties with regard to ICO as requested by the sponsoring societies or the National Academies.

U.S. Committee Promotes ICO Programs

U.S. involvement in the ICO is promoted not only through professional societies, but also by the very active and effective U.S. Advisory Committee (USAC). While SPIE, OSA, and IEEE all participate in ICO as individual societies, they and other NAS representatives work together on the USAC promoting international and domestic optics and photonics, and supporting and augmenting ICO programs. Current areas of interest and focus include:

- Active Learning in Optics and Photonics workshops – These workshops, coordinated by UNESCO and led by an international team of facilitators, are designed to better equip university and high school teachers to teach optics in introductory physics courses through hands-on learning. These 5-day workshops focus on experimental physics areas that are relevant and adaptable to research and educational conditions in developing countries. In the last five years, workshops have been held in Ghana, Philippines, Tunisia, Morocco, India, Tanzania, Brazil, Mexico, Zambia, and the Cameroon. The USAC supports the participation of two facilitators in these workshops.
- ICTP Winter College in Optics – The USAC supports ICTP's Winter College in Optics by funding two lecturers and several students. Efforts have been made to expand U.S. support.
- Education and Training in Optics and Photonics conference – This bi-annual conference offers an opportunity for individuals to share best practices in education and training in optics and photonics. The 2009 conference was held in St. Asaph, Wales, and through a grant from the National Science Foundation, the committee was able to assist a number of Americans attend the conference.
- Update to *Harnessing Light* - In 1998, the National Research Council (NRC) published a report titled *Harnessing Light*. More recently, the USAC/ICO has worked very hard collaborating with the NRC National Materials and Manufacturing Board (NMMB) to launch the Harnessing Light II Study. On February 23, 2011, the NRC NMMB finally convened the study committee to (1) Review updates in the state of the science that have taken place since publication of the original report; (2) Identify the technological opportunities that have arisen from recent advances in optical science and engineering; (3) Assess the current state of optical science and engineering in the United States and abroad; (4) Prioritize a set of research grand-challenge questions to fill identified technological gaps; (5) Recommend actions for the development and maintenance of global leadership in the photonics driven industry.

Members and Staff of USAC/ICO

The committee is made of regular and ex officio members who must be citizens or permanent residents of the United States. The ex-officio members are comprised of the

executive directors of the sponsoring societies and appointed ICO Vice-Presidents from ICO Vice- Presidents from ICO member organizations in the U.S. Both the National Academy of Sciences and the sponsoring societies nominate new members to the committee. All nominees must be approved by the President of the National Academy of Sciences (NAS). NAS appointments always consider the need for continuity, rotation of membership, gender and ethnicity, and disciplinary base of the Committee.

Kathie Bailey-Mathae, BISO Director

The committee is supported full time by Staff of the Board on International Scientific Organizations (BISO) of the National Academy of Sciences. The current BISO Program Officer supporting the committee is Mr. Karumuna Augustine Kaijage and the Program Associate is Ms. Lina Stankute-Alexander. The Director of BISO, Kathie Bailey-Mathae, has been a key and consistent figure in the functioning of this committee. Having served as previous staff officer to the USAC/ICO and now as the Director of the board that oversees the USAC/ICO, she has been instrumental in ensuring the successful operation of the committee—including securing the availability of necessary funds to support the work of the committee.

Below is the complete membership list and affiliation of the USAC-ICO:

- *Duncan Moore (Chair), University of Rochester*
- *David Hardwick, Consultant*
- *Erich Ippen, Massachusetts Institute of Technology*
- *Eric Johnson, University of North Carolina, Charlotte*
- *I.C. Khoo, Pennsylvania State University*
- *Richard Linke,IEEE/Photonics Society*
- *Carmiña Londoño, National Science Foundation*
- *Anita Mahadevan-Jansen,Vanderbilt University*
- *John Pellegrino, U.S. Army Research Lab*
- *David Williams, University of Rochester*
- *Alan Willner, University of Southern California*
- *Elizabeth Rogan, Optical Society of America (OSA)*
- *James Harrington, Rutgers University*
- *Eugene Arthurs,The International Society of Optical Engineering (SPIE)*
- *Kari Apter, Optical Society of America (OSA)*
- *Bobbie Lively, International Society of Optical Engineering (SPIE)*
- *Phillip Stahl, NAS*

NAS Staff

- *Karumuna Kaijage, Program Officer*
- *Lina Stankute-Alexander, Program Associate*

THE OPTICAL SOCIETY (OSA):

DONNA STRICKLAND: OSA'S ENTHUSIASTIC SUPPORT OF THE ICO

OSA joined ICO as an Organizational Member in 1999 - the year this membership category was created. As well as serving as the 2011 OSA Vice-President, I serve as the OSA's appointed representative Vice-President to ICO.

María L. Calvo, current ICO President, attended the OSA Leadership Conference in Washington, DC, USA in February 2011 at the invitation of Chris Dainty, 2011 OSA President. María presented an excellent history and summary of ICO to the receptive OSA audience.

OSA and ICO cooperate on many events each year, such as ICTP's annual Winter College on Optics and Education and Training in Optics and Photonics (ETOP). OSA will contribute a grant and a student paper award to ICO-22, International Commission for Optics Congress to be held from 15 to 19 August 2011 in Puebla, Mexico.

During the 2008 ICO meeting in Australia, the ICO Officers and member society representatives discussed fundraising in support of ICO activities. At that time, contributors were not able to make tax-deductable donations to the ICO due to its organizational structure. As the group searched for solutions, OSA CEO, Elizabeth Rogan volunteered to investigate the possibility of an ICO partnership with the OSA Foundation (OSAF).

María L. Calvo, ICO President delivering a keynote presentation during the Optical Society 2011 Winter Leadership Conference

Established in 2002, the OSAF is a charitable, not-for-profit organization dedicated to carrying out philanthropic programs that further the study of science. The Foundation provides support programs that: i) Advance youth science education; ii) Provide optics education and resources to underserved populations; iii) Offer career and professional development resources; and iv) Award, honor and recognize technical and business excellence. For the period between 2003-2010, the Foundation funded more than 300 activities and 700 grants that benefited thousands of individuals in over 55 countries.

The missions of the ICO and OSAF are closely aligned; this shared vision and purpose was essential as the possibility of a partnership was explored. After much research, "Fiscal Sponsorship" was identified as a highly viable option.

A fiscal sponsorship enables the OSAF to receive US tax deductible donations to support ICO outreach activities. Donations from donors outside the US are also welcome, but are

generally not deductable for the contributor. These funds are placed in an OSAF-administered restricted account. ICO is able to use the donations to fund its philanthropic activities, such as traveling lectures, student support, education outreach and award programming, subject to grantor-grantee style approval and reporting requirements. Using this arrangement, donations to the OSAF in support of the ICO are considered tax deductible (as provided by law) and in compliance with US tax laws and regulations.

In 2010, the ICO and the OSAF finalized their fiscal sponsorship agreement, and I am delighted to report that donations to the OSAF in support of ICO programs may now be made using a secure online form located on the OSAF Web site (www.osa-foundation.org). The ICO is now in the process of raising awareness of this new giving opportunity and hopes to encourage many donations from its large community of supporters.

TUNISIAN SOCIETY OF OPTICS (SOCIÉTÉ TUNISIENNE D'OPTIQUE-STO-) REPORT

Activities during 2008-2011

A. Activities for Research Development

1) 17-18 Oct 2008-Workshop on plasma physics- focus on LIBS (Laser induced breakdown spectroscopy)- Faculty of Sciences-Tunis-FST-
2) 16-17 Jan. 2009-workshop on Biophotonics- Faculty of Sciences-Tunis-FST-
3) 6-7 March 2009-workshop on structure & dynamic molecular physics-FST-
4) 18-20 march 2010.workshop on molecular collisions Hammamet-
5) 14-17 June 2010. Workshop on molecular dynamics-Solvation- FST-

B. Activities for Education Development in optics & photonics

These activities focused on Active Learning Approaches for teaching physics and particularly optics and have been done by STO members for teachers at university & secondary school in different region in Tunisia:

1) 9-11janv. 2009 Workshop Active Learning in Mechanics -ALIM – Faculty of Sciences-Tunis-FST-
2) 5 Feb.2009 –Active Learning in Optics & Photonics- ALOP -Focus on Interference-Diffraction module- Centre de Recherché et de Formation Continue -CREFOC-SFax-Tunisia
3) 20 Feb.2009 ALOP –Active Learning in Optics & Photonics-Focus on Interference-Diffraction module- CREFOC-Jendouba –Tunisia
4) 23 Jan. 2010-ALOP in Geometric Optics for students at Ecole Supérieure d'Audiovisuel et du Cinéma- ESAC- Gammarth- Tunis

5) 9-10 April 2010.ALOP in Geometric Optics for students in biology - Faculty of Sciences-Tunis-FST-

Optics for student & parents

Workshops in optics based on geometric optics – Imaging -how to built camera obscura with old and new approach- organized in Dec 2010 *for students and parents*-

Interaction with Industry in optics:

20-21 Feb.2009-Participation to exhibition for opticians

Intraction with medical corps using lasers

2010 &2011- since 2010 regular seminars on lasers –ophthalmologists, dermatologists

Lasefest:

La S.T.O fête

La Société Tunisienne d'Optique organise
du **22 au 27 mars 2010** un workshop :

LES LASERS CO_2 ET N_2
PRINCIPE
CONSTRUCTION ET APPLICATIONS

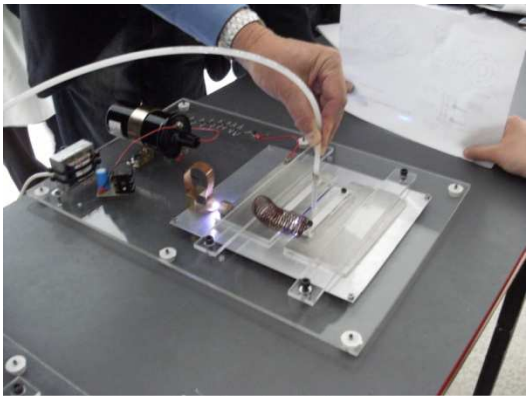
à l'école Esprit , Pôle Technologique
el *Ghazala , Tunis -Tunisie*

Sponsors

Comité d'organisation
- Ali Zaidi- (STO)
- Hassen Ghalila-(STO)
- Youssef Majdi-(STO)
- Faycal Tounsi-(ESPRIT)
- Mekki Ksouri-(ENIT)
- Mehdi El Kamel (ESPRIT)

Comité scientifique
- Hubertus von Bergmann *(Laser Research Institute Stellenbosch-South Africa)*
- *Ali Zaidi-(-IPEST-STO)*
- Mehdi El Kamel (ESPRIT)

During March 22 -27 the 2010 school on Lasers was held with participation of ALC (African Laser Centre) (how to built CO2 & N2 laser?) for Esprit ICT engineer school students.



Stimulated emission

Establishment of OSA Student Chapter in 2009 & SPIE Student Chapter in 2010

The engineering school of communication of Tunis (Sup'Com), which is the leading engineering school dedicated to ICT in Tunisia, and located in thema in Tunisian technopark, involves a very active research group, O&PTSC, (Optics & Photonics Tunisia student chapter) in the fields of optical fibre communications, optoelectronics, quantum communications, and photonics components for telecommunication-based applications.

In 2009, a group of PhD, MSc and Engineering students, established the first student chapter if the Optical Society of America OSA in Tunisia (the second in Africa). In 2010, they started the Tunisia student chapter of the international society for optical engineering (SPIE). The joint OSA and SPIE Tunisia student chapter is organizing educational, outreach activities as well as seminars and conferences.

In December 2010 Prof. Maria Yzuel was invited by the SPIE student chapter for a visit under the visiting lecturer program of SPIE.

Activities planed for 2012

A. Activities for Research Development

First EOS Topical meeting on Photonics for Sustainable Development –Focus on the Mediterranean (PSDM2011) in collaboration with STO. 31 March- 2 April 2012- Ramada hotel Gammarth-Tunis www.myeos.org/events/psdm2011

B. Activities for Education Development in optics & photonics

STO will organize the International conference on Education and Training in Optics and Photonics- **ETOP** 29-31 March 2012- Ramada hotel Gammarth-Tunis. www/esprit.com/etop/

-Preparation of new experiments for ALOP.

ICO BUREAU MEETINGS

MINUTES OF THE FIRST 2008 ICO BUREAU MEETING

Held in Sydney, Australia, on Sunday, July 6, 2008, from 9:00 AM to 5:00 PM

Present:

ICO Bureau Members: M.L. Calvo, R. Dändliker, A.T. Friberg, A.M. Guzmán, M.Gu, G. F. Jin, I. C. Khoo, Y. Kim, M. Kujawinska, J. Love, Y. Petroff, A. Sawchuk, G.T. Sincerbox, P. Stahl, G. Von Bally, A. Wagué, I. Yamaguchi.

EOS Representative to the ICO Bureau 2008: P.Török

Apologies for absence have been received from: S. N. Bagayev, P. Chavel, H. Lefèvre, J. Braat (substituted by P.Török).

Administrative Secretary: R. de Cecilio

1.- Call to order, introduction, matters arising, approval of minutes Bureau 2007

Ari T. Friberg, President, opened the session. He thanked all the attendees for their presence. Apologies for absence have been received from P. Chavel, S. N. Bagayev, H. Lefèvre and J. Braat due to major reasons. He addressed the welcome to all the attendees and thanked to J. Love and C. Walsh for all the arrangements for the venue of the meeting. He mentioned the proposed Agenda (including the first and the second Bureau) and the one for the General Assembly (GA) to be held on Monday July 7, 2008 and Wednesday July 9, 2008. The financial report and associated issues have to be revised and in particular the proposed Budget. In the revision fees for current dues and awards need to be considered. He thanked all those working during the 2005-2008 term inside and outside the Bureau.

Proposal: "To approve the minutes of the ICO Bureau Meetings held in Accra, Ghana, November 17, 2007. (Motion: first R. Dändliker and A. Sawchuk second). Unanimously approved.

2. - President's report

2a) President's report

Ari T. Friberg, ICO President reported presenting slides show. The activities of ICO in 2008 related to the importance of optics and photonics. The membership were sustained and with good collaboration with International Societies (IS). The contacts with the Territorial Committees (TC) needed to be improved. The are currently international projects as the Active Learning in Optics and Photonics (ALOP) leaded by UNESCO and with M. Alarcon as responsible person. ICO is working to establish formal collaboration still under preparation for the MoU. Regarding ICSU, ICO is Scientific since October 2005, there are difficulties encountered in contacting ICSU responsible. In relation with IUPAP it will be informed in forthcoming Points of the Agenda on the activities inside the also Nanoscience Group as well as the Young Scientist Prize in Optics.

The operational procedure of ICO Bureau has to be improved. During the actual term problems with financial matters occurred and to this concern there was special thanks to ICO Secretariat for the sustained help on this issue. The ICO book belonging to the classical series was printed by SPIE. As a revision of major meetings, it was mentioned the ICO Regional Meeting (Campinas Brazil, October 2007) in which new discussions for organizing a Latin-American Network took place. The membership has to be enhanced in geographical areas as in Africa, Latin-America and Middle-East. To this regard the LAM Network was very important and to establish contacts with the African Laser Center.

As other initiated activities not yet accomplished A.T. Friberg mentioned the ICO Summits earlier proposed by J. Goodman. To the present date no significant progress was reported, mainly due to the involvement of the financial adjustments in US. There was related to important information from ICO Treasurer regarding the current status of the ICO account in US. Those are important fixing points that have to be continued at the next ICO Bureau.

2b) ICO book

A. T. Friberg, ICO President informed on the current status of the ICO book series, volume VI edited by himself and R. Dändliker. The subject of the book is: *Advances in Information Optics and Photonics* belonging to a series of ICO books. Copies will be provided at the forthcoming ICO-21 after arrangements with SPIE publishers and offering a reduced prize at the conference. The contents were based upon the Winter College on Quantum and Classical Aspects of Information Optics, held in 2006, the ICO Topical meeting on Optoinformatics held in Saint Petersburg (Russia) in September 2006 and ICO Prizes winners for the period 2003-2006. The series of books provides visibility for ICO and revenues to be used for the Traveling Lecture program. Currently with percentages as 12.5% that needed to be increased. R. Dändliker thanked A. T. Friberg for his enormous effort in achieving the book project. Also in this occasion it was improved with the edition in paperback.

3. - Financial matters

A. Sawchuk, ICO Treasurer, reported with slide show presentation. He included status from October 1, 2005 to October 1, 2008. There was a major discussion on whether ICO might keeping in working with US$ versus euros. The main proposal was to work with both currencies and using the association with OSA or other IS. Currently there are two bank accounts one in US (Tanque Verde, Arizona) as well as in Paris (France). TC's have requested payment with the use of credit cards (representing a 3% fee). The idea ICO Treasurer is proposing is to minimize the risk and to have assets in euros and assets in US dollars.

G. Sincerbox presented his analysis for the financial activities. Main question to be considered was the Dollar versus Euros currency operation. Dollars are facing decreasing the rate of exchange, therefore producing ICO losing money (by December 2009 if the economical situation is similar the losses could be the order of 50% of the current revenues). Discussing pro and against to work only in euros took place. It was agreed that there was a need for a re-adaptation period, with the pertinent approval of the GA, and the establishment of a subcommittee studying the actual problems and solutions.

Y. Petroff reported his analysis. As a main issue banks have to inform customers on the risk for their interest rates. Euro as per 2008 situation is a harder currency than dollar. However, it was too late to shift to euro, an action that needed to be taken earlier. An immediate solution

was to maintain the two bank accounts and avoiding transfers from one account to another. Y. Petroff proposed a compromise as 75 euros + 75 US$ for 1 unit dues. This fashion could help to maintain similar rates in both accounts and one could expect some balancing in a near future for both currencies. The cost for transferring money from different accounts was very high (J. Love).

A. Sawchuk accepted Y. Petroff proposal and including some modifications. TC could pay the dues with a choice either in euros or in US$. It has to be considered that actual dues are fixed in US$ also for the ICO awards. R. Dändliker added that further discussions are needed and it is important to know to which account the dues are paid. I. Khoo suggested to increase the dues since this is maintained in US$, for example up to 200 US$. P. Stahl agreed with this proposal. The General Assembly has to be informed if there is a decision for increasing the dues and for pertinent approval. A major reason being the actual decrease in value of US$ currency. The actual unit dues were maintained for more than ten years. In case of increase approval this should be reflected in the awards. A prior study would be needed because some TC could be on arrears (M. L. Calvo). G. Sincerbox indicated that reserves needed to be known prior to have any decision. Another possibility was the increase awards without increasing dues. A. Guzman commented that the procedure for the transferring needed to be improved and discussions are needed on this procedure to ameliorate it. The credit card payment has to be introduced. (Motion: A Sawchuk first, R Dändliker, second). Unanimously approved. The Treasurer will take care on introducing this facility (**Action 08/01**, new ICO Treasurer).

A. Sawchuk continued with the report. The total liability at the US account was 185,799 US$ coinciding with the total assets (dated July 1, 2008). The retaining earnings were 166,000 US$ (dated July 1, 2008). The account in Paris statement was 38,875 euros (62,199 US$, dated July 1, 2008). US account total statement was 111,122 US$ (dated July 1, 2008). As an indication the French bank was charging 25 euros/month for maintenance. A. Sawchuk suggested changing the bank branch. As other relevant aspects, the cost of ICO Newsletter was very high. Discussions arisen with the procedure for reducing costs and needing new bids for 2009. Regarding countries in arrears, Belgium was in arrears for more than six years (Brazil was readapted to a normal status after negotiation in 2007 with the grant accorded to RIAO/OPTILAS). The proposed Budget was similar as in the precedent term 2002-2005. Dues were not revised for sixteen years and it was necessary to adjust it. There should be an optional payment in US$ or euros, proposing 175 US$, (16% of increase) and creation of a Subcommittee in the new term chaired by the Treasurer (**Action 08/02,** new Treasurer), and raising support of meetings and schools and awards. There was a proposal for approval of budget as published at the Green Book "Towards ICO-21". G. Von Bally proposed that a minimum of two persons from the Bureau might be recognized for changing accounts into different branches. ICO account in US was currently located in Tanque Verde, Arizona with two authorized signatures. A. Sawchuk indicated that revision to the interest needed to be done prior to be presented at the GA.

First proposal: “Increase of unit dues to 175 US$”. During last term inflation was increased and then reducing the value of awards and proposing increase prizes and conference supports, payments in US$ or in euros, (appearing in the Invoice). (Motion: First P. Stahl, second G. Jin). Unanimously approved. Second proposal: “Establishing a Subcommittee headed by the new Treasurer to advice ICO Bureau for a better balance income-expenses, assets management and investment policy”. Treasurer has to adjust the billing for the two options for payment. (Motion: A. Sawchuk first, M. Gu second). Unanimously approved.

4. - Committees reports, except prizes and awards

4a) Long Range Planning Committee (LRPC)

Ari T. Friberg, ICO President and Chair of the Committee reported. There was one short meeting of the LRPC prior to the actual Bureau. Regarding ICSU Scientific Associate, ICO membership develops positively. There was an enhanced collaboration with developing regions. Regarding IUPAP membership there was a routinely common work. There was considered the actual problems for connection with industry and needed to be reinforced. IUPAP was currently organizing workshops on physics and entrepreneurship in developing countries. The action is positive and should be considered by ICO. The earliest action for ICO summits from J. W. Goodman proposal needed further consideration for ICO financial status. The main idea was to bring together groups from areas traditionally in conflict: i.e. Israel & Arab states, China & Taiwan, to develop common meetings and activities. A. Sawchuk commented that this action could be connected with OSA staff. But a previous collaboration is needed. G. Von Bally informed on contacts with J. W. Goodman and needing some more time to establish a well-defined program.

4b) Nominating Committee (NC)

R. Dändliker, ICO Past-President and Chair of the Committee reported. The current members of the Committee for term 2005-2008 were: A. Consortini, A. Friesem, A. H. Guenther[2], R. Sirohi. The Green Book "Towards ICO-21" contained the Interim Report of the Nominating Committee; therefore members of the Bureau are requested to check the contents of the same. A change for the Chinese candidate occurred because of actual commitments of former candidate J. Cao as Vice-Minister due to recent earthquake in China. Another candidate was proposed in substitution from the Chinese Academy of Science. There were two candidates from industry: H. Lèfèvre (France) and M. Oron (Israel). R. Dändliker thanked A. Consortini for her work in achieving candidates for the Executive Committee, especially for the Secretary (A. M. Guzman). Still there can be candidates nominated by the Territorial Committees until 24 hours before the GA. The second updated list was sent by end June to TC. Discussions arisen on candidates and R. Dändliker pointed out that NC had the only duty to collect the nominations. A.T. Friberg noticed that endorsements could be also applicable. Positions were open for a total of eight elected Vice-Presidents; among them some are for a second term. The list will be announced at the GA. Since there are missing members of the NC, neutral observers will be needed in the second GA. R. Dändliker requested IS to nominate the candidates at the time of the GA and revising confirmation of representatives. SPIE: P. Stahl, IEEE/LEOS I. Khoo, OSA: G. Sincerbox, EOS to be confirmed, LAM: A. Wagué.

4c) Committee for the Regional Development of Optics (CREDO)

A. M. Guzmán, Chair of the Committee, reported including slide show. She displayed the list of activities of CREDO for the term 2005-2008. There was a major support toward the Mexican bid for ICO-22 in 2011. She informed on the activities developed in the Latin-American Network (REDOLA). In 2006: X ENO/I CANCOA with forthcoming next series in November 2008. In 2007 there was an optics symposium "Optics in industry" held in Buenos Aires (Argentina) and the RIAO/OPTILAS held in Campinas (Brazil). For 2008 and 2009 additional activities are planned in La Plata (Argentina) and one International meeting in speckle in 2010. In July 2009 there will be held in Peru an ALOP workshop. Also, Peru is in

[2] A.H. Guenther passed away on April 2007.

charge for the organization of RIAO/OPTILAS 2010 and it is preparing ICO membership. In Cuba, it was held TECNOLASER 2007.

There is a main action for the creation of an Iberian American Network on Optics (RIAO), the organization of the internal structure was already designed and by laws were as well prepared. There was the objective to include Spain and Portugal inside activities to get a stronger link. Connections with the Spanish Optical Society (SEDO) and the journal Óptica Pura y Aplicada (OPA), the only journal in optics and photonics published in Spanish. There was a current offer for electronic free access and including an international editorial committee.

Regarding Asian activities, it was mentioned the forthcoming Photonics 2008 to be held in New Delhi (India); the project in Thailand initiated by S. Sumriddetchkajorn and preparing an educational kit and bringing teachers in these activities.

For African activities there was mentioned the OPTOLASERMED meeting held in Cape Coast (Ghana) in 2007; Tunisia: activities were carried out for schools on spectroscopy and molecular physics. A. Guzman resumed the activities on ALOP conceptual of physics knowledge and training of future trainers. It was organized in modules of various subjects in fundamental optics. The series of workshops were done since 2004, with forthcoming ones in Zambia and in Peru. ICO was currently working for the MoU with ALOP. After the presentation various questions arisen. In particular, A.T. Friberg remarked the importance of the proposal for RIAO to be a future IS in the ICO Bureau.

4d) Traveling Lecturer Committee

A. Sawchuk reported. He gave a resume on activities from October 1, 2005 to October 1, 2008. He presented the list of lecturers with a total of six. The total applied budget was of 5,000 US$. There was spent 253 US$ more because one program was paid in euros. He commented that applicants were increased but still needing more dissemination of information and may be increasing to a total of six/three years. It is necessary to promote the program to have competitive candidates and refer candidates to other programs: OSA; SPIE. It was needed a policy regarding re-application from the same person. One case has occurred setting a time limit between awards to the same person, for example, three or four years. Discussion arisen, TC's were not commonly very active on these activities that used to initiate more through invitations from particular institutions. The Committee needs to take care on the quality of the program.

4e) Education Committee

M. Kujawinska, Chair of the Committee reported. She summarized activities remarking that ICO is involving an 80% of education activities, including the educational kits, international master courses and other international actions including the ALOP programs. Educational kits have been financed by NEMO European network, other educational programs were under current development as in Thailand (as informed in previous Point of the Agenda). A complete information needed to be linked at the ICO website and organizing distribution through IS as OSA and SPIE students chapters. There were initiatives for preparing kits in various languages as Spanish and Russian.

There was a current program on Erasmus Mundus master on Optics and Photonics financed by the EU (involving five European universities) with scholars from developing countries. This information should be included at the ICO website and Newsletter. She informed on Photonics 21 platform launched by the EU and with all information in the corresponding website, having a

publication on “Towards a bright future” with electronic downloaded. A workshop took place in Brussels on June 2008. She added information on other international activities, SPIE/OSA educational activities, ETOP proceedings, IS student chapters in many countries all over the world.

There was additional information provided by G. von Bally on Photonics for Life Network financed by the EU.

5. - Reports of liaisons with Territorial Committees and International Societies

It was agreed the Point to be discussed at the second Bureau.

5a) Territorial Committees (TC)

A. T. Friberg addressed a request to all Bureau members to enhance the reports on important aspects related to TC’s activities during the period November 2007 to July 2008.

5b) International Societies (IS)

In the occasional absence of G. Sincerbox, Vice-President appointed by OSA, A. Sawchuk reported for OSA activities. OSA Foundation is indeed benefiting from a very wealthy status but currently yet no information was available for the ICO Bureau and to study join activities.

P. Stahl, Vice-President appointed by SPIE reported.
A. Wagué, Vice-President appointed by LAM reported.
M. Gu Vice-President appointed by OWLS, reported.
P. Török representing EOS at the ICO Bureau 2008 reported.

5c) OiC/IP Steering Committee

This Committee is having very little activity. M.L. Calvo reported on the preparation of the forthcoming Information Photonics meeting to be held in Japan, November 2008. It was expected a continuation of the series after the mentioned meeting and with contacts with the organizer J. Tanida.

6. - ICO Prize and Awards Committees

6a) ICO Prize Committee

B. Y. Kim, Chair of the Committee, reported. The Committee consisted of five members: S. Bagayev, A. Friesem, G.F. Jin, Y. Kim (Chair) and J. Love after the resigning of A. Weiner.

For the 2008 Call the Committee was receiving various good nominations that were reviewed in detail. The Committee recommended Zeev Zalevsky from Bar-Ilan University, Israel. He had very good contributions on optical information processing and in particular in optical super resolution. The remaining candidates could be considered for the forthcoming call. At the proposal it was considered all the merits concurring in this candidate. There were however still problems for having a reasonable number of candidates. For the previous year there were only four candidates. Discussions arisen on how to promote the prize and how visibility needed to be stronger. G. von Bally proposed to consider that the award ceremony could be extended to inviting reputed scientists on the area (**Action 08/03**, Chair of the ICO Prize).

Motion: First, M.L. Calvo, second G. Von Bally. Unanimously approved.

6b) ICO/ICTP Gallieno Denardo Award Committee

A. Wagué, Chair of the Committee reported. The call for 2009 was still open up to December 2008. Last year the award was accorded to Mourad Zghal from Tunisia. R. Dändliker indicated that is was required to introduce appropriate changes on the conditions of the call to improve the current nominations.

6c) Galileo Galilei Award Committee

I. Yamaguchi, Chair of the Committee reported. For the 2008 Call the committee was receiving five nominations from various geographical regions of the world. He informed on the members of the Committee: S. Baggev, G. V. Bally (for N. G. Gaggioli), A. Consortini, Z. Ben Lakhdar, V. I. Vlad, and I. Yamaguchi (Chair) and the particular situation occurred with N. Gaggioli who resigned because of illness. Some of them were already nominated for previous years. After studying and considering all the merits the Committee proposed Joewono Widjaja from School of Laser Technology, Suranaree University of Technology, Thailand. His main scientific work concerns wavelet transform based signal processing, speckle metrology, holography, join transform correlator, speckle and Internet photonic routing. The Committee was considering as well the comparative unfavorable circumstances since the candidate has done all activities in a developing country (as defined by UN). Moreover, it was considered as well geographical distribution for previous awardees. Motion: "To propose Joewono Widjaja from School of Laser Technology, Suranaree University of Technology, Thailand for the ICO Galileo Galilei Award 2008". First, M. Gu, second G. Jin. Unanimously approved.

7.- ICO participation in meetings and schools

G. Von Bally reported. He was presenting a review of all applications received.

7a) Events taking place in the period October 2007 – October 2008

ICO accorded a total of 8,000 US$ grants. G. Von Bally informed as well on the forthcoming meeting for OWLS 11 in 2009 in Quebec. The Singapore Optical Society is now under the process to be organized. He mentioned some overlapping that occurred for two conferences in September 2008 because of unexpected shift of one of the conference (Singular Optics, Ukraine). No further considerations were issued since for the actual period was closed with the entire budget consumed.

7b) Future meetings and schools October 2008 to September 30, 2011

G. Von Bally presenting the list of application. Regarding the LAM meeting 2009 it expected to receive the application later.

It was then voted on the current proposals already applied. Motion: First, A. Sawchuk, second I. C. Khoo. Unanimously approved. This aspect will be discussed on the second Bureau meeting, July 11, 2008.

1. Oct 2008 - 30. Sep 2009 (Period 1)	Date	requested by applicants	and/comp. Granfrink (proposal marked in blue)	ICO representative:
Photonics Prague 2008, Prague, Czech Republic	27-29 Aug 2008	endorsed no money requ	end. US $ 0	Gert von Bally
10th International Conference on New Developments and Applications in Optical Radioastry (Renewal 2008), Daejeon, Korea	13-16 Oct 2008	endorsed no money requ	end. US $ 0	Youn Kim
International Topical Meeting on Information Photonics 2008 Awaji, Hyogo, Japan	16-20 Nov 2008	endorsed no money requ	end. US $ 0	Prof. Yasuhiko Arakawa
PHOTONICS 2008 9TH International Conference on Fiber Optics and Photonics, New Delhi	14-17 Dec 2008	cosponsored US $ 6,000	end. US $ 1,000	Ari Friberg
VI International Workshop TECNOLASER 2008 and II Meeting Optics, Life and Heritage, Havanna, Cuba	13-18 Apr 2009	cosponsored US $ 3,000	end. US $ 2,000	Gert von Bally Maria Calvo
4th Asian Pacific Film Symposium for Biophotonics (APBP 2009) Jeju Island, Korea	27-29 May 2009	cosponsored US $ 5,000	end. US $ 1,000	Min Gu
12th International Conference on Photorefractive Materials, Effects and Devices - Control of Light and Matter Bad Honnef, Germany	11-14 Jun 2009	cosponsored US. $ 2,500	coop. US $ 1,000	Cornelia Denz
International Conference Tiltsco- to Nano-Photonics II - ROMOPTO 2009 Sibiu, Romania	31 Aug - 3 Sep 2009	cosponsored US $ 2,000	coop. US $ 1,000	Valentin Vlad
9th International Conference on Correlation Optics „Correlation Optics'09" Chernivtsi, Ukraine (ICO support to be decided)	29-24 Sept 2009	cosponsored US $ 3,000	end. US $ 1,000	Maria Calvo
			US $ 6,500	

1. Oct 2009 - 30. Sep 2010 (Period 2)	Date	requested by applicants	end. or cosp. Grant/risk (proposal marked in blue)	ICO representative
Emerging Trends and Noval Materials in Photonics ICO Topical Meeting, Delphi Greece	7-9 Oct 2009	Cosponsored US $ 6,000	Cosponsored US$ 2,000	Maria Calvo
LAM Conference Dakkar, Senegal	Dec. 2009			
OWLS 11, 2010 Canada	Sept. 2010			Gert von Bally
1. Oct 2010 - 30. Sep 2011 (Period 3)				
ICO 22	2011			

7c) Preparation of ICO XXII

As previously approved the event was managed under a separate budget. The bid from Mexican colleagues had an additional revised budget, according to Bureau instructions, with an adjusted balance as suggested. The proposal will be presented for approval by the GA to be held in Sydney, July 9 and July 11, 2008. The related questions will be discussed further on the second Bureau meeting.

8. Next Bureau Meeting

This aspect will be discussed on the second Bureau meeting, July 11, 2008.

9. Membership

9a) ICO Membership

M.L. Calvo reported. For the year 2008 there was received an application from Sudan, from the Sudan Committee of Optics, Quantum Optics and Lasers. M.L. Calvo informed on all the documents that were presented under the ICO format and official requirements. Motion: First, I. C. Khoo, second A. Wagué. Unanimously approved.

The proposal of Sudan as new ICO Territorial Committee will be submitted for approval to the GA.

9b) ICSU links

A.T. Friberg reported on the various activities done inside ICSU. However, no activities in optics and photonics were to be mentioned. Further information will be done at the Second Bureau.

9c) IUPAP links

Y. Petroff reported. He presented a resume with the aide of slide show. A new program for membership to support developing countries by defining three levels or categories was under actual development. IUPAP was involved in two conferences with ICTP in 2006 and 2008. There was a main action for the creation a new type of conference. The IUPAP Medal and Prize for Young Physicist was decided and approved at the GA in 2005. Each IUPAP Commission is able to concede one prize. The last call was very successful. Yet criteria for IUPAP Young Scientist Prize in Optics as a join prize with ICO needed to be developed.

Other activities concerned the Working Groups: Women in Physics, ICUIL and Nanoscience. The next GA will be in Tsukuba (Japan) 14/18 October 2008. A.T. Friberg will attend this meeting.

A.T. Friberg provided additional information on the ICO participation in IUPAP Nanoscience Working Group. IUPAP was sponsor of the last ICO-21. It was expected near future application for the ICO Topical meeting 2009.

There was still one action pending related to the ICO Newsletter link to IUPAP website.

ICO is having currently representatives at three Commissions: C15, C13 and C17, respectively. A. Guzman ICO representative at C15 reported and informed on the IUPAP Young Scientist Prize accorded to Robin Santra from Argonne National Laboratory, USA. There were discussions for the according rules for assuring accessibility of scientists to USA

conferences. Related meetings it was mentioned the Nanoscience Working Group meeting held in February 2008 in Toronto with 75 participants and very high standards. The Topic on next meeting will be on periodic metallic structures. There was as well the ICTP-NANOAFNET regional college on Science at Nano-scale held in South Africa, November 2007.

10.- ICTP relations and current plans for joint events

10a) TSOSA Advisory Group

A. Guzman, Chair of the TSOSA reported. ICO Bureau has proposed the financing for ICO/TSOSA activities with an increase from 3,000 US$ to 5,000 US$, for a total period of three years and to be revised at the proper time. A. Sawchuk, ICO Treasurer, will report on the near GA. The subject will continue in the second Bureau.

10b) Winter College 2008

Maria L. Calvo, ICO Secretary reported. According to the previous agreement at the TSOSA meeting in 2007, she was resubmitting at the TSOSA meeting, February 2008, the proposal for the subject for the forthcoming Winter College 2009. The proposed topic was "Optics in Environmental Sciences" which was approved by the TSOSA. ICTP coordinator, J. Niemela was preparing the draft of the program to be sent by October 2008

11. - Administrative business

No relevant matters on administrative business to be reported.

11a) ICO Newsletter

M.L. Calvo informed that according to previous ICO Bureau agreements there must be open a new bid for 2010, preferably in January 2009.

11b) ICO web site

The maintenance is still performed by the SPIE webmaster with support from R. Donelly.

11c) Green Book "Toward ICO-21"

IoP was publishing the new edition of the Green Book "Towards ICO-22" edited by ICO Secretary. This time two hard copies were distributed to all Territorial Committees with additional two CD's. It was the first time that CD's were produced for the Green Book. Hard copies will be available at the forthcoming GA in Sydney.

12.- Other business

No further business to be considered.
Meeting ends at 5:30 PM

ICO Secretariat
Draft prepared by M.L. Calvo
First version August 28, 2008
Final version September 29, 2008

MINUTES OF THE EXECUTIVE COMMITTEE MEETING

Held in Sydney, Australia, on Sunday, July 6, 2008, from 8:30 AM to 9:00 AM

Present:

M.L. Calvo, R. Dändliker, A.T. Friberg, A. Sawchuk, G. Von Bally.

The President A.T. Friberg was revising the Points of the Agenda. There were in particular decided those to be discussed in First meeting and in the GA.

The Execom will propose the ICO/TSOSA small increase in the budget by US$ 2000. Then, with a total of 5,000 US$ for the forthcoming three year 2009, 2010 and 2011. The meetings procedure was ready to be approved with no financial problems to be reported. The information on the forthcoming 2009 ICO Topical meeting will be presented at the ICO Bureau.

The Treasurer report will be revising the major aspects of the Budget.

There will be as well the presentation of the President report.

At the forthcoming GA the first report prepared by the Nominating Committee has to be distributed and to be presented before Point 6 of the GA.

Glenn Sincerbox, Past-ICO Treasure will participate at the Nominating Committee report and other distinguished past members of the ICO Bureau.

Meeting ended at 9:00 AM.

August 28, 2008

MINUTES OF THE 2008 JOIN MEETING OF THE OLD AND THE NEW BUREAUS

Held in Sydney, Australia, on Friday, July 11, 2008, from 9:00 AM to 5:00 PM

Present:
ICO Bureau Members: M.L. Calvo, A.T. Friberg, A.M. Guzmán, M.Gu, J. Harrington, G. F. Jin, I. C.
Khoo, Y. Kim, J. Love, M. Kujawinska, F. Mendoza, D. T. Moore, A. Sawchuk, G.T. Sincerbox, P.
Stahl, G. Von Bally, A. Wagué, I. Yamaguchi.
EOS Representative to the ICO Bureau 2008: P.Török

Apologies for absence have been received from:
S. N. Bagayev, P. Chavel, R. Dändliker, H. Lefèvre, J. Braat (substituted by P. Török), Y. Petroff

Administrative Secretary: R. de Cecilio

1.- Call to order, introduction

A.T. Friberg opened the session and thanked the old Bureau members for the work done during the preceding term. In particular, he thanked all members who are leaving the Bureau because they ended their term. Then he proceeds for introducing the new members elected at the late General Assembly. One important date to be considered is the one for starting the operations of the new Bureau, as it is traditionally, October 1, 2008.

A.T. Friberg then hands over the chair M.L. Calvo, President elect.

2.- Operation of the ICO Bureau 2008-2005

M.L. Calvo continued in revising the Points of the Agenda. There is a revision of the current status of positions at the ICO Bureau. In particular, the position of Senior Adviser “ad personam”, P. Chavel was communicating to ICO Bureau previous to Sydney meeting that he would like to close his activities as “senior adviser”. However, he will be able to continue supporting the operations at the French account and to facilitate the work of the Treasurer.

Regarding the operation procedure for the remaining Points it was done as in precedent terms. The printing of the new letterheads will to be done as soon as all IS representatives at the ICO Bureau be confirmed. Prior to October 1, 2008, the old letterheads will be useful. Electronic format will be provided by ICO Secretary to all ICO Bureau members (**Action 08/04,** Guzman).

3.- Financial Operation 2008-2011

The Treasurer reviews the current information. As a first action, the new ICO Treasurer, J. Harrington, has to be officially recognized to operate the French bank account (**Action 08/05,** Calvo, Chavel, Harrington). By October 1, 2008, it will be studied the changing of the American account to a different bank institution, if required, with the aim of looking for better operations. One important point influencing the current status is to study the recognition of ICO by US banks as a non-profitable organization or to search for another issue as a MoU with OSA (**Action 08/06**, J. Harrington). J. Harrington explained the previous conversation with E. Rogan, OSA Executive Director, for OSA Foundation to handle for the US$ donation to ICO. D.T.

Moore considers the action of sending letters to past ICO Bureau members for donation to ICO (**Action 08/07**, Moore). A.Sawchuk, past-Treasurer, keep in reporting the current points as a continuation of the information presented on the precedent Bureau. He presented the statements as per June 1, 2008[3] and analyzed the increases on expenditures. The budget matches between income and expenses.

In general, the past-Treasurer pointed out the ICO finances are in good shape with regard to the end of year 2008. There has to be approved an increase of dues for unit approved by the General Assembly to 175US$.

The new budget, starting by October 1, 2008, was revised.

G. Sincerbox, suggested that the budget for the General Congress be a separate budget item in the overall budget. The overall budget would show 38,000 US$ for all meetings and schools and 7,000 US$ for ICO-22. Loan and risk for ICO-22 would be off the budget (i.e., come from surplus funds). Motion: G. Sincerbox, first, G. Von Bally second. Unanimously approved.

Planning to TC in arrears. Information passed from ICO Secretariat to ICO Treasurer on 2008 invoices. Case of Belgium (20,000 US$ in arrears), to send a letter. (Motion: A. Sawchuk and J. Harrington).

It is not expected an increase in the Secretariat expenses as well as for the whole Bureau expenses. There has been approved an increase up to US$15,000 for the ICTP Winter College grant for the forthcoming three years 2009,2010 and 2011. The Traveling Lecture program has assigned a total of US$6,000. The total expenses approved by the General Assembly for the budget of the term 2008-2011 are US$ 6,000[4].

The ICO Book series, volume VI, was published in June 2008. It may be advisable to have a volume VII by 2014 or to study other alternatives (**Action 08/08**, Calvo).

4.- ICO representation in external committees, 2008-2011 and
5.- ICO Committee Structure 2008-2011

M.L. Calvo, ICO Elected-President, proposes to treat together these two Points. Representative chairs will be appointed in accordance with their experience and seniority. The current ICO Bureau for the term 2008-2011 is as follows:

President: M.L. Calvo
Past-President: A.T. Friberg
Secretary: A.M. Guzman
Associate Secretary: G. Von Bally
Treasurer: J. Harrington
Elected Vice-Presidents:
Y. Arakawa (Japan)
Z. Ben Lakhdar (Tunisia)
H. Lefevre (France)
F. Mendoza (Mexico)
D. Moore (USA)
M. Oron (Israel)
B. Zhou (China)

[3] See Minutes First Bureau 2008.

[4] See Minutes of the General Assembly 2008.

T. Szopliczs (Poland)
IS designated Vice-Presidents:
EOS: R. Ramponi
IEEE/LEOS: I. C. Khoo
LAM Network: A. Wagué
OSA: t.b.d.
OWLS: M. Gu
SPIE: P. Stahl
IUPAP representative: t.b.d.
M.L. Calvo appointed the following Committee Chairs:
- Nominating Committee (Chair: A.T. Friberg)
- Long Range Planning Committee (Chair: M.L. Calvo)
- Committee for Regional Development (Chair: D. Moore)
Subcommittee for industrial links (Chair: F. Mendoza)
- Education Committee (Chair: Z. Ben Lakhdar)
- Traveling Lecturer Program (Chair: J. Harrington)
- ICO Prize Committee (Chair: M. Gu)
- ICO Galileo Galilei Award Committee (Chair: T. Szopliczs)
- ICO/ICTP Committee (Chair: A. Wagué).
Representatives of the ICO Bureau in external committees:
ICO Associate members in IUPAP Commissions:
- C13 (Physics on development): A. Wagué
- C15 (Atomic and Molecular Physics and Optical Physics): A. Guzmán
- C17 (Quantum Electronics): A.T. Friberg
IUPAP Triennial General Assembly and annual IUPAP Council and Chair meetings: the Past-
President or the President will attend these meetings.
ICSU links and General Assembly, the President M.L. Calvo will attend these meetings during
the period 2008-2011.
Steering Committees:
- Education and Training in Optics and Photonics (ETOP): J. Love
- Optics in Computing (OiC) currently designated as Information Photonics
(IP): J. Harrington.
Trieste System Optical Sciences and Applications Advisory Group (TSOSA): A. M. Guzmán.

6.- ICO participation in meetings and schools

This information was transmitted according to the presentation of the Associate Secretary's report
at the General Assembly.

7.- Date and place of the next ICO Bureau meeting

There was a current proposal for celebrating the meeting in Delphi (Greece) at the occasion of the forthcoming ICO Topical meeting on "Emerging Trends and Novel Materials in Photonics", Wednesday 7- Friday 9 October 2009. M.L. Calvo, informed that the proposed dates could be 5 and 6 October, 2008, prior to the celebration of the meeting or at the end of the

same: 10-11 October 2009. The decision has to be coordinated with N. Vainos, Chair of the meeting (**Action 08/09**, Guzman).

A. Friberg mentioned that proposals for the location and dates of the ICO Bureau 2010 are needed. It could be at the occasion of an ICO Topical or Regional Meeting. To that concern proposals from the ICO Bureau are expected (**Action 08/10**, all ICO Bureau).

8.- IUPAP ICSU links

This information was transmitted according to the presentation of the President's report at the General Assembly.

9.- ICTP relations

9a) TSOSA
9b) Winter College

This information was transmitted according to the presentation of the Secretary's report at the General Assembly and the report of the Chair of CREDO also presented at the General Assembly.

10.- ICO Book preparation

ICO Elected-President, M.L. Calvo, will study possible actions and to inform the Bureau at the ICO Bureau meeting in 2009.

11.- Administrative business

11a) ICO Newsletter
11b) Green Book Towards ICO-21

New ICO Secretary, A. M. Guzman and Past-Secretary, M.L. Calvo will work in coordination for a proper transfer of the administrative work and duties related to the two items 11a) and 11b).

12.- Other business

No further business to be discussed.
Meeting ended at 5:00 PM

First draft issued in Madrid, 31 January 2009
Second version issued in Madrid, 5 February 2009
Final version issued in Madrid, 20 February 2009

Members of the old and new ICO Bureau pictured at the gates of the University of Sydney's School of Physics during the ICO-21 Congress and General Assembly meeting in July. From left to right (first row): A Wagué, M L Calvo, G Sincerbox, I Yamaguchi, R de Cecilio (ICO staff), A T Friberg and D T Moore. Second row: A Sawchuk, F Mendoza, H P Stahl, A M Guzman and M Kujawinska. Third row: G von Bally, P Török (representing the European Optical Society at the meeting), J Harrington, J Love and I C Khoo.

MINUTES OF THE 2009 ICO BUREAU MEETING

Held in Delphi, Greece, on Tuesday, October 6, 2009 from 9:00AM to 5:00PM

Present:

ICO Bureau Members: Bingkun, Z., Calvo, M.L., Friberg, A., Gu, M., Guzman, A., Harrington, J., Khoo, I.C., Ben Lakhdar, Z., Mendoza Santoyo, F., Moore, D., Oron, M., Ramponi, R., Stahl, H.P., Strickland, D., Von Bally, G., A. Wague

Apologies for absence have been received from:
Arakawa, Y., Cisneros, C., Lefevre, H., Szoplik, T.

ICO Administrative Secretary:
M. Troshinsky

Call to order 9:20AM

Maria L. Calvo, ICO President, opened the session. She thanked all the attendees for their presence and introductions were made.

Motion 1 (Moved by M.L. Calvo, seconded by F. Mendoza, approved unanimously).

The ICO Bureau approves the minutes of the two previous Bureau Meetings held in Sydney, Australia, in 2008: (1) 1st ICO Bureau Meeting and (2) the Joint Meeting of the Old and New elected Bureau.

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1. **President's report (10/1/08 – 9/30/09)** : ICO President – M.L. Calvo

ICSU General Assembly: M. L. Calvo attended the General Assembly of ICSU, the International Council for Science (October 2008). Since 2005 ICO is one of 21 International Scientific Associates of ICSU, whose full members are National members and 30 International Scientific Unions. The ICSU General Assembly takes place every 3 years. ICO attended for the first time the ICSU General Assembly in 10/08 in Mozambique. M. L. Calvo had the opportunity to give information on ICO, and to display a poster on ICO Activities along with other International Associates. She also took the opportunity to contact representatives of the Academy of Sciences of Guatemala and Costa Rica, countries that, like others in Central America, lack activities in optics. The realization of a Workshop in Costa Rica with participants from the region could be a means on promoting activities in optics in Central America.

M.L. Calvo contacted the International Mathematical Union, which is open to interaction with other branches of science in order to enhance activities in applied mathematics, and might be able to offer support to the ICTP Winter College in Trieste.

Other ICSU activities that M.L. Calvo attended were the International Polar Year Celebration in February 2009 in Geneva.

M. L. Calvo recommends that ICO works hard to make sure that optics and photinics are well represented in Science. ICO's opportunities within ICSU are limited because

ICO is not a full ICSU Member, i.e, it is not an International Scientific Union.

Other activities of the ICO President:

November 27/2008: Panelist in the Spanish Optical Society's Panel on past, present and future of optics in Spain organized in commemoration of the 40th Anniversary of the Spanish Optical Society. All presentations of this panel are linked on the websites of the Spanish Optical Society and the ICO. The Spanish optics community is a very large one with around 400 current members.

December 2008: She attended the Photonics 2008 International Conference on Fiber Optics and Photonics in New Delhi, India. It was sponsored by the ICO, the Optical Society of India, and other societies.

February 2009: She attended the Winter College at the International Center for Committee meeting also took place during the Winter School in Trieste.

April 2009: She attended the VI International Workshop Technolaser & II Meeting on Optics, Life, and Heritage in La Habana, Cuba. The two Meetings were held together for the first time, sponsored by ICO, and organized by the Cuban Territorial Committee in Optics, which is part of the Cuban Physical Society. A report on this meeting was published in the July 2009 ICO Newsletter. The Meeting was very encouraging and had participants from Latin America, the USA and Europe.

May 2009: She was invited to the International SPIE Students Chapter Meeting, organized in Poland. She took the opportunity to go there via the SPIE Visiting Lecturer program. The meeting was organized by students, and it was very well organized.

July 2009: She attended the ETOP 2009 Meeting. This is a joint initiative with ICO, SPIE, OSA, and IEEE. The ICO representative in ETOP's Steering Committee is John Love. Zohra Ben Lakhdar participates in ETOP activities through ALOP and other activities. She also attended the Technium OTIC Meeting in North Wales, United Kingdom. There were 90 participants in this high quality meeting. It supports high school activities and preliminary courses at the college level that improve the use of optical methods and help distributing information.

August 31- September 3, 2009: She attended ROMOPTO 2009 in Sibiu, Romania, meeting organized by the Romanian Optical Society and the Romanian Territorial Committee, and sponsored by ICO. ROMOPTO is a very well-established and high quality meeting series, chaired by Valentin Vlad.

September 20-24, 2009: She attended the 9th International Conference on Correlation Optics in the Ukraine, which is an ICO sponsored event. The President of the European Physical Society, Maciej Kolwas extended an invitation to the ICO to participate in the application for the "International Year of the Light 2010." More information will be forwarded as the initiative develops.

Contacts with Industry:

M. L. Calvo received invitation from INDRA (one of largest industries in Spain for information technology) to give them a brief explanation of what ICO is. Perhaps there could

be a joint activity between industry and ICO. They would like to organize a workshop in which the ICO will sponsor.

She attended a presentation in Barcelona, SECPho (Southern European Cluster in Photonics). She was very impressed with the large number of companies working well in optics and photonics in Spain.

She was invited to attend a meeting by the Chamber of Commerce of the US Delegation in Europe in Brussels in conjunction with the visit of Connecticut Congressman Joe Courtnay and his trade delegation. There are various optics and photonics clusters in Connecticut and she invited them for ICO events to learn how they are working.

2. Financial Matters : J. Harrington, ICO Treasurer.

Agreement with the OSA Foundation: This agreement states "the ICO wishes to establish an arrangement whereby the OSAF receives tax deductible donations that will be restricted to support ICO outreach activities." This prompted the question: is there a way in the United States to give money to the ICO and get a tax break, since we are not a charitable organization? Ideally we should be a charitable organization so that we may provide funds for the following purposes: travel to meetings, student aides, and hosting scientific/technical meetings.

Motion 2: (Moved by D. Moore, seconded by I.C. Khoo & A. Guzman, approved unanimously)

(1) The ICO Executive Committee is authorized to negotiate with the OSA Foundation (OSAF) the following issues:

(a) Qualification regarding points 3 and 7 of the Memorandum of Understanding.

(b) Transfer of OSAF funds from the ICO & OSA restricted account to ICO if ICO becomes a 501(c)3.

The ICO Executive Committee is authorized to accept or reject the proposal at its discretion.

(2) Treasurer will report on process to change ICO from a 501(C)6 to a 501(C)3 at the next Bureau Meeting

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Treasurer's Report 2008-2009: J. Harrington, ICO Treasurer

The balance sheet as of October 1, 2009 (attachment 1) was presented. ICO has an excellent cash balance. The main discussion elicited from this presentation was financial liability. A persistent problem encountered by the Treasurer this year was the collection of dues in arrears. A long-term issue that needs to be addressed is a re-examination of the units that are assessed to each territory as a means of determining their dues. Consensus among the Bureau Members was that we should update the units, as some countries should be paying more money.

Motion 3: (Moved by H. Philip Stahl, seconded by M. Gu, approved unanimously).

At the 2010 for the next Bureau Meeting, the Executive Committee will present a proposal to modify the "Green Book" at the 2011 General Assembly Meeting to update the units allocation based on an acceptable formula such as IUPAP units or World Bank economic index.

Motion 4: (Moved by D. Moore, seconded by Khoo & Guzman, approved unanimously.)

The ICO will establish an ad-hoc committee on membership that will be chaired by the ICO Secretary and will include the Treasurer. The committee will have representatives at least from each of the continents. The committee will be responsible for reviewing the current membership and increasing the membership. At the next Bureau meeting the committee will make a proposal on whether to make this committee a permanent committee of ICO.

3. Committee Reports, (Except Prizes and Awards)

4a. Long Range Planning Committee (LRPC) Maria L. Calvo, ICO President.

ICO Archives: ICO archives date back to1947 and had been kept until 2003 in Paris, where the ICO Secretariat was located. The archives up to 2009 are now in the Facultad de Ciencias Fisicas of the Universidad Complutense of Madrid. There are 20 boxes of old documents (from 1948). The LRPC recommends the scanning of selected documents, to have a repository in CDs. For the selection process ICO could require the services of a historian specialist. D. Moore will look at these documents in the near future and make a recommendation to the Bureau. The archive of the ICO Secretariat might not include the Award Committees archive, which might require also electronic archiving. There would be a cost associated with the selection and the electronic acquisition process.

ICTP Winter College: it is important to increase the number of attendees from US.

ICO membership: LRPC recommends the creation of a new committee to handle aspects of ICO membership.

(i) South Africa was an ICO Territorial Member and wants to reinstall its ICO membership. D. Moore will be visiting South Africa and will discuss possibilities of reinstalling the membership with the S. African community.

(ii) Portugal was an ICO Territorial member. A new Portuguese Committee of Optics is in process of creation, and was informed to M.L. Calvo, which is planning to organize a workshop in 2011, as a starting activity.

Application to the UN for the Year of the Light: It is ambiguous how EPS will deal with this, short time frame.

Representation of ICO in IUPAP and ICSU: Ari Friberg will attend the IUPAP General Assembly on behalf of the ICO President. ICO Bureau should look for ways of improving current ICO's representation in these international organizations.

4b. Committee for the Regional Development of Optics (CREDO) Duncan Moore, CREDO Chair.

The goal is to hold a meeting entitled "Entrepreneurship and Optics in Developing Countries" in the summer of 2011 (perhaps a satellite to 2011 meeting in Mexico). After careful budgeting of lodging and travel expenses for the Committee Members to several locations, the best options result to be Lisbon, Portugal, or Madrid, Spain.

Moore has been invited to be an instructor at a similar meeting to "Physics and Entrepreneurship in Africa" to be held in South Africa in November 2009. This one-week event

was last held in Trieste. He emphasizes the need of understanding market opportunities, since innovation results from invention in conjunction with market opportunity.

Some agencies (USAID, UN Foundation, and NSF) will be addressed in order to raise funds for the participation of some speakers and people from developing countries. NSF could help support speakers who are US citizens. The total funds required are about $20,000.

Possible speakers that have been proposed are: Fedoroff, Seelig, Cone, etc. The Committee is also looking for non US speakers.

Moore has already contacted Saudi Arabia and UAE to explore their interest into entrepreneurship classes, which might be also a means to attract them to become ICO members. Bureau members are asked to let know D. Moore about other territories that would be good candidates to involve in these activities.

4c. Education Committee. Zohra Ben Lakhdar, Education Committee Chair.

The list of Members and Adviser Members of the Education Committee was presented. The last meeting of the Education Committee was held during the ICTP Winter College in February 2009. The objective of the Education Committee is to look for ways to awaken worldwide awareness on the fast expansion of education research in physics and to further develop optics and photonics education. One of the ways to do this is through ALOP (Active Learning in Optics and Photonics) based projects and other activities within University, High School, Primary School, and societal channels. The Education Committee plans to encourage interdisciplinary connections, to collect information on activities and initiatives, to collect first papers on optics from journals such as AIP or Optics Letters, and to give publicity to available facilities.

ICO Education Committee could coordinate a global activity for teenagers by looking for already successful models For example; the workshop that ICTP has organized for teens (16-18 years old) on how to develop projects, or the education initiatives of Ray Davies from the Photonics Academy presented at ETOP 2009 in Wales.

Programs to be implemented or reinforced:

(i) "MAGICAL HOME," which stands for "Making a Growing Image Centered around Light HOME.
(ii) "VISION" Photonics 2009, which stands for "Viable Involvement Seeking Innovative Optically Novel Photonics"
(iii) To look for the possibility that each LAM conference includes an ALOP Workshop as a co-located activity for teachers.
(iv) Link ALOP and MAGIC HOME activities to the celebration of the 2010 year of the laser.
(v) To promote the realization of 2011 ETOP in Tunisia

4d. Traveling Lecturer Committee James Harrington, Chair.

There were two awardees of the traveling lecturer program selected between multiple applicants: Professor Imrana Ashraf Zahid from Quaid-I-Azam University in Islamabad Pakistan and Dr. Maxim G. Tomilin from St. Petersburg State University of Information Technology, Mechanics and Optics in Russia. Each awarded individual receives $1,000. From

the $5000 allocated in the ICO Budget for the program through a 3-year period, $2,000 has been spent.

ICO President, Maria Calvo, suggested that the award be further advertised through a poster.

5. Reports of Liasons with Territorial Committees & International Societies

5a. International Societies

EOS Activities 2009: R. Ramponi.

The European Optical Society currently consists of 22 member societies (10 branches and 12 affiliated societies). The total membership is approximately 6,500 members mostly in Europe and a few percent worldwide.

EOS focuses on different activities and cooperates with IOP on journals. EOS publishes a printed EOS Newsletter in the Optics and Laser in Europe and an electronic EOS Member Newsletter. Each year EOS awards the EOS Prize and several EOS Fellowships, for which nominations are welcomed. Information about all EOS events held in 2009 and to be held in 2010 can be found in the EOS webpage myeos.org. EOS participates in the EU Project Phorce21, supporting the European Technology Platform Photonics 21 secretariat.

LAM Network: A. Wague

The LAM 2009 Workshop continued successfully the series of conferences that contributes to the development of science in Africa, by bringing African scientists together. The proposal of the ICO Education Committee for co-locating LAM conferences and ALOP Workshops is welcome since it might benefit all optical societies in Africa.

Currently the main organization in charge of activities on optics in Africa is the African Physical Society. The members of the LAM Network are joining efforts to establish an African Optical and Photonics Society, as well as working on a Memorandum of Understanding with the African Laser Center.

A, Wague participated in February 2009 in a workshop of the National Society of Black Physicists (NSBP) in Nashville, Tennessee, USA.

SPIE: P. Stahl:

In 2010 the SPIE President will be Ralph B. James, and the President Elect: Katarina Svanberg. SPIE administers a very successful Student Scholarship Program for which there were 221 applications in 2009, and 116 scholarships awarded. Scholarships cover all levels of education: high school or secondary school, undergraduate or post-secondary school, or graduate school. The selection is not based on the nationality of the student, but rather on where the student is studying.

OSA . D. Strickland. No report.

IEEE – I. C. Khoo

The name of the IEEE/LEOS Society changed to the Photonics Society. Its work is centered in the US. I. C. Khoo chairs the USAC/ICO, whose meetings are organized by Kathy Bailey-

Mathae .from the National Academy of Sciences, who is also the best contact person for USAC/ICO. A special sub-committee of USAC/ICO was created to look for ways of enhancing the involvement of US in the Winter College.

5b. OiC/IP Steering Committee

The next meeting (2010) will be in Canada (Ottawa). A proposal to have a meeting in Japan was suggested. Other optical societies will be invited to attend.

5c. ETOP Long Range Advisory Committee Meeting

The ICO representative for this Committee is John Love. He attended the last Committee Meeting. The Committee discussed how to maintain and strengthen ETOP activities.

5d. ETOP

The next meeting will be in Tunis, Tunisia in July 2011.

6. ICO Prize and Awards Committees

6a. ICO Prize Committee, Min Gu, ICO Prize Committee Chair.

The Committee consisted of 7 members: M. Gu (Chair), P. Buah-Bassuah, I.C. Khoo, B. Y. Kim, F. Santoyo, P. Stahl and B. Zhou. Dr. King was the previous chair of this Committee and he had agreed to be on the Committee, but he never replied. The winner that was recommended by the Committee was Dr. Rajesh Menon from MIT for his breakthrough achievements in nano-lithography. This work was published in Science.

Motion 5: (Moved: by Min Gu, seconded by F. Mendoza and M. Oron, approved unanimously)

The ICO 2009 Prize is awarded to Dr. Rajesh Menon from MIT for "breakthrough achievement in nanolithography, in particular for his invention and development of the absorbance modulation method for a wider range of nanophotonic applications"

6b. ICO/ICTP Award Committee. A. Wague, Committee Chair.

Thus far, there has only been 1 applicant. Last year there were 8 applications because of the announcement on the LAM website.

6c. Galileo Galilei Award Committee ICO Secretary, A. Guzman reported on behalf of T. Szoplik, Committee Chair..

The Committee consisted of 8 members: T. Szoplik (Chair), C.B. de Araujo, G. von Bally, P.K. Buah-Bassuah, B.P. Pal, M.Shabat, V. Vlad, and I. Yamaguchi. This year the Committee decided to share the award between 2 people. The awardees are Dumitru Mihalache of Romania and Marat Soskin of the Ukraine.

Motion 6: (Moved by G.Von Bally, seconded by M. Oron, approved unanimously)

The ICO Galileo Galilei Award 2009 will be shared between Dumitru Mihalache of Romania "for his achievements in the field of theoretical nonlinear optics" and Marat Soskin of the Ukraine "for his achievements in the fields of tunable lasers, dynamic holography, and linear and nonlinear singular optics". The cash award will be divided between the awardees. Each awardee will receive $500 and will be invited to deliver his award lecture at a major ICO event. ICO will give travel support if requested by the awardees.

6d. IUPAP Young Scientist's Committee. Ari Friberg, Chair.

Ari Friberg prepared and presented a document to the Executive Committee Meeting concerning the description and regulations for the IUPAP Young Scientists award. The Executive Committee recommendation was handled out to the Bureau members (see attachment 2). The document establishes as a new rule to be granted to individuals after a maximum of 8 years from their PhD degree. Nominations should be carried from year to year, while the candidates continue being eligible.

Motion 7: (Moved by Friberg:, seconded by Min Gu and others, approved unanimously)

The ICO Bureau approves the revised document concerning the IUPAP Young Scientist Award, as provided by Friberg (attachment 2).

There were 4 nominations, one of them a self-nomination that was disqualified. The remaining nominees were:

-Dr. Goëry Genty, Tampere University of Technology, Finland.

-Dr. Eleftherios Goulielmakis, Max Planck for Quantum Optics, Garching, Germany.

-Dr. Jose Ricardo Arias Gonzalez de la Aleja, Consejo Superior de Investigaciones Cientificas (CSIC), Madrid, Spain.

The winner was Dr. Eleftherios Goulielmakis from the Max Planck Institute for Quantum Optics in Garching, Germany.

Motion 8: (Moved by Friberg, seconded by P. Stahl, approved unanimously)

The ICO Bureau approves the decision of the IUPAP's Young Scientist Committee, and declares Dr. Eleftherios Goulielmakis as the winner of the IUPAP Young Scientist 2009 Award in Optics "for outstanding contributions in attosecond physics, particularly in the generation of attosecond pulses and their application in the direct measurement of light waves".

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7. ICO participation in meetings and schools. G. von Bally, Associate Secretary.

A spreadsheet with the list of events to be supported and the amount granted was presented to the Bureau (attachment 3). Two major events are taking place in Europe in 2010, the SPIE Photonics Europe in Brussels, Belgium in spring and EOS Annual Meeting at end of October 2010 in Paris, France. The Executive Committee recommends co-sponsoring each of these events with 2000 euros. Both are extremely large conferences, but the ICO contribution is expected to improve visibility of the ICO and to be used for supporting participants from developing countries.

The 7th International Conference on Optics-Photonics Design & Interpretation will take place on April 19-21, 2010 in Yokohama, Japan. ICO is usually requested to endorse the conference, which ICO will do without contributing financially.

OWLS 11 will take place in Quebec in 2010. The last OWLS conference received ICO support consisting of $1000 in cash, and $1000 as funds sharing risk.

The LAM Network Conference was shifted from November to January so as not to conflict with other conferences.

There was a recent application for support from the organizers of RIAO/OPTILAS 2010, which will take place in Lima, Peru in the second half of September 2010. ICO has been supportive of the series and some budget should be reserved for this purpose. G. von Bally has not reviewed the application. The Bureau will be asked for approval by electronic means.

Motion 9: (Moved by G. von Bally, seconded by J. Harrington and M. L. Calvo, approved unanimously)

The ICO Bureau approves the distribution of ICO support to events as presented by the Associate Secretary (attachment 3).

J. Harrington recommends that whenever a Territorial Committee asks for ICO financial support for a conference, the Territory should have paid their ICO dues up to date. He has been negotiating with Territorial Committees on this regard whenever possible.

ICOXXII Congress 2011 F. Mendoza, Chair.

The William O. Jenkings Convention Center has been selected as the venue for the ICO22 Congress 2011, in Puebla, Mexico. Additionally, Puebla's State Government has generously volunteered to support the ICO22 Congress by contributing some financial resources for the event's logistics and by helping to promote the event.

Originally, the idea of hosting the Congress in BUAP University's facilities was suggested, however the Convention Center has more experience in organizing conferences. BUAP University however, has volunteered their cultural premises, cultural events, and has volunteered to hold the welcome reception.

Conference topics have already been decided upon, but not confirmed. M. Calvo says that topics are narrow because this conference takes place every 3 years. We need to be sure that everything is properly classified. As such we should work with a scientific committee. All topics need to be seen with high visibility. We should not mix laser technologies with more fundamental topics. Check with the ICO21 congress as a guide.

It was also suggested that the event page include more "scientific" graphics.

ICO Topical Meeting 2010. (M. L. Calvo)

M. L. Calvo has worked out an agreement with EOS, whereby ICO will organize the Topical Meeting 7 on Optics and Energy within the EOS Annual Meeting to be held in Paris in October 2010. The final dates are to be decided according with the dates for the large exhibit attached to the conference. The ICO Bureau congratulates the President on her action in this regard.

8. Liasons to ICSU and IUPAP. M. L. Calvo.

ICSU links

ICSU has been sending documents to M. Calvo and she forwards them to ICO Secretariat, A. Guzman. All documents can be found at the Blackboard site.

IUPAP links

G. Von Bally asks ICO's President to write a letter of support to ICSU's initiative on the issue of Security vetting and the principle of Universality, specifically supporting the paragraph that appears in italics in the ICSU letter.

Motion 10. (Moved by: G. von Bally, seconded by R. Ramponi and Z. B. Lakhdar. 9 votes in favor, 6 abstentions, 1 opposed. Motion approved.)

The ICO Bureau asks the ICO President to write a letter of support to ICSU's initiative on the issue of Security vetting and the principle of Universality.

IUPAP C13 A. Wague. No report.

IUPAP C15 A. Guzman.

Guzman could not attend the last Meeting that was held in June. The next Meeting will take place in Cairns, Australia in July 2010. The Minutes of the 2009 Meeting were attached to the booklet for the ICO Bureau meeting.

IUPAP C17 A. Friberg

The meeting of the Commission was held on February 2009 in London. The next meeting will also take place in London. Prof. Friberg has established contact with officers from IUPAP in order to achieve that the members appointed by ICO to the different commissions be accepted by the respective Commissions as associate members of the commission.

9. ICTP relations and current plans for joint events

TSOSA Advisory Group (A. Guzmán)

ICO has had a long collaboration with ICTP, and is member of the Advisory Board of the Trieste System on Optical Sciences and Applications (TSOSA), an advisory body that meets annually at ICTP during the Winter College on Optics. TSOSA Advisory Board supports and gives advice on all ICTP's activities on Optics, especially on topics and directors for the Winter College. ICTP research activities on Optics are performed in the Laser Lab and in the recently established ICTP-INFN Lab. They involve researchers from developing countries, mainly from Africa, and receive financial support from SPIE.

Winter College -- (Niemela report through M. Calvo)

The Winter College 2009 was on Optics and Environmental Sciences. All the information can be found on the ICTP website.

Posters & Oral Presentation Awards for ICTP Winter College and Other Meetings

A. Guzman proposed the creation of an award for oral presentations of the students at the

ICTP Winter College. The award could be the last volume of the series of Trends in Optics. Another suggestion would be to offer a free registration to an ICO sponsored Meeting.

10. Administrative Business

ICO Newsletter

ICO Secretariat, Angela Guzman, announced that all contributions to the ICO newsletter should be sent to her. Text translations can be made if necessary.

ICO in Laserfest 2010

ICO Secretariat, Angela Guzman, encouraged participation of the ICO in Laserfest 2010 (laserfest.org) and discussed the proposal for an International Year of Light. John Dudley sent a letter requesting the support of the International Commission for Optics (ICO) to prepare a proposal to the United Nations to declare an *International Year of Light* to be held during the period 2014-15. The Quantum Electronics & Optics Division (QEOD) of the European Physical Society is offering to act in the initial stages as Secretariat for the proposal. A. Guzman did a presentation on behalf of John Dudley. The ICO Bureau considers that this is a long term issue that will deserve further discussion once the procedure to apply for a United Nations declaration of an International Year of Light is clear.

Blackboard demo

Melissa Troshinsky, ICO Administrative Assistant, gave a brief demonstration on Blackboard, a web-based organization tool that assists the ICO Secretariat in disseminating information and keeping files and archives organized. A tour of Blackboard's capabilities and services were also shown.

Motion 11: (Moved by: L.Calvo, seconded by Z.B.Lakhdar, approved unanimously)
ICO Bureau recognizes and values the effort of the ICO Secretariat on building electronic support to facilitate communications within the organization and electronic archiving of ICO documents.

First version by the ICO Secretariat, January 29th, 2010
Reviewed by María L. Calvo, February 25th, 2010
Approved by the ICO Bureau, October 30th, 2010

LIST OF ACTIONS:

1. **ICO Executive Committee:** To negotiate agreement with OSA Foundation (OSAF) whereby the OSAF receives tax deductible donations that will be restricted to support ICO outreach activities. Items 3 and 7 of the Memorandum of Understanding are in conflict with ICO goals. The Bureau will accept the decision of the Executive Committee.

2. **Treasurer:** To determine the requirements of US government to change ICO status in USA from a 501(C)6 to a 501(C)3 non for profit organization and present a report at the next Bureau Meeting
3. **ICO Executive Committee:** At the 2010 for the next Bureau Meeting, the Executive Committee will present a proposal to modify the "Green Book" at the 2011 General Assembly Meeting to update the units allocation based on an acceptable formula such as IUPAP units or World Bank economic index. Check if ICO units assignment is bound to IUPAP's.
4. **Secretary:** Prepare the proposal for reassignment of units to be presented to the ICO Bureau and to the General Assembly once recommended by the Bureau.
5. **ICO Executive Committee:** To establish an ad-hoc committee on membership that will be chaired by the ICO Secretary and will include the Treasurer. The committee will have representatives at least from each of the continents. The committee will be responsible for reviewing the current membership and increasing the membership. At the next Bureau meeting the committee will make a proposal on whether to make this committee a permanent committee of ICO, in which case a suggestion should be made to the General Assembly and a proposal added to the Green Book.
6. **D. Moore:** To look in the ICO archives hold at the Universidad Complutense de Madrid and give advice on what information should be scanned and archived in electronic form.
7. **D. Moore:** To promote possible reinstallation of a South African ICO Territorial Committee during his visit to South Africa.
8. **Secretary:** To advertise the traveling lecturer program through a poster.
9. **Secretary:** Introduce information on the IUPAP young Scientist Prize in Optics in the webpage and in the green book.
10. **President:** To write a letter of support to ICSU initiative on the issue of Security vetting and the principle of Universality.

LIST OF MOTIONS:

Motion 1
The ICO Bureau approves the minutes of the two previous Bureau Meetings held in Sydney, Australia, in 2008: (1) 1st ICO Bureau Meeting and (2) the Joint Meeting of the Old and New elected Bureau

Motion 2
(1) The ICO Executive Committee is authorized to negotiate with the OSA Foundation (OSAF) the following issues:
- (a) Qualification regarding points 3 and 7 of the Memorandum of Understanding.
- (b) Transfer of OSAF funds from the ICO & OSA restricted account to ICO if ICO becomes a 501(c)3.
- (c) The ICO Executive Committee is authorized to accept or reject the proposal at its discretion.

(2) Treasurer will report on process to change ICO from a 501(C)6 to a 501(C)3 at the next Bureau Meeting

Motion 3

At the 2010 for the next Bureau Meeting, the Executive Committee will present a proposal to modify the "Green Book" at the 2011 General Assembly Meeting to update the units allocation based on an acceptable formula such as IUPAP units or World Bank economic index.

Motion 4
The ICO will establish an ad-hoc committee on membership that will be chaired by the ICO Secretary and will include the Treasurer. The committee will have representatives at least from each of the continents. The committee will be responsible for reviewing the current membership and increasing the membership. At the next Bureau meeting the committee will make a proposal on whether to make this committee a permanent committee of ICO.

Motion 5
The ICO 2009 Prize is awarded to Dr. Rajesh Menon from MIT for "breakthrough achievement in nanolithography, in particular for his invention and development of the absorbance modulation method for a wider range of nanophotonic applications".

Motion 6
The ICO Galileo Galilei Award 2009 will be shared between Dumitru Mihalache of Romania "for his achievements in the field of theoretical nonlinear optics" and Marat Soskin of the Ukraine "for his achievements in the fields of tunable lasers, dynamic holography, and linear and nonlinear singular optics". The cash award will be divided between the awardees. Each awardee will receive $500 and will be invited to deliver his award lecture at a major ICO event. ICO will give travel support if requested by the awardees.

Motion 7
The ICO Bureau approves the revised document concerning the IUPAP Young Scientist Award, as provided by Friberg (attachment 2)

Motion 8:
The ICO Bureau approves the decision of the IUPAP's Young Scientist Committee, and declares Dr. Eleftherios Goulielmakis as the winner of the IUPAP Young Scientist 2009 Award in Optics "for outstanding contributions in attosecond physics, particularly in the generation of attosecond pulses and their application in the direct measurement of light waves".

Motion 9
The ICO Bureau approves the distribution of ICO support to events as presented by the Associate Secretary (attachment 3)

Motion 10
The ICO Bureau asks the ICO President to write a letter of support to ICSU's initiative on the issue of Security vetting and the principle of Universality.

Motion 11
ICO Bureau recognizes and values the effort of the ICO Secretariat on building electronic support to facilitate communications within the organization and electronic archiving of ICO documents.

ATTACHMENT 1: ICO TREASURER'S REPORT, 2008-2009

The ICO has been able to retain an excellent cash balance of $150,930 in our treasury. This amount is held in US dollars ($134,324) at the US Bank of America and in Euros (11,220 €) in the Caisse D'Epargne in Paris. The primary source of income that the ICO receives is derived from membership dues contributed by the Territorial Committees. The money that the ICO expends is used mostly to support conferences, ICO prizes, and travelling lecture awards.

Balance Sheet - 1 October 2009

Assets	
Current assets	
Checking/Savings	
Bank of America - checking	$22,667
Bank of America - money market	$111,657
French account-converted 1$ =1.48 €	$16,606
Total checking/money market	$150,930
Accounts receivable-dues owed	
Current year	$14,000
2008 year	$9,700
2007 year	$21,600
2006 year	$11,400
Prior year dues in arrears	$15,900
Total accounts receivable	$72,600
Total assets	$223,530
Liabilities and equity	
Conference support for 2009	
ETOP	$2,000
ICO Topical Meeting, Dephi, Greece	$1,825
V Workshop on Lidar, Buenos Aires	$1,000
Secretariat-A. Guzman	$3,000
Traveling lecture award	$1,000
Prizes	$2,000
Newsletter-IOP Publishing	$780
BTB Mailflight-mailing newsletters	$1,050
ICSU	$750
Total liability	$13,405
Equity	
Retained earnings	$210,125
Total equity	$210,125
Total liabilities and equity	$223,530

A persistent problem this year is the collection of dues in arrears. This is a problem which has existed for some time and it is an issue that needs to be addressed. So far in 2009, 28 out of 56 territories or 50% have not paid their dues as of October 1st. The non-payment of dues goes back, in some cases, beyond 5 years. For these few cases the ICO needs to decide whether the

territory should be dropped from ICO membership or should continue their membership assuming that some arrangement is made to pay their past dues.

The biggest expense of the ICO outside of the money given to support conferences, travel, and prizes is for publication and mailing of the newsletter and green books. So far in 2009 the publisher, IOP Press in the UK, has charged the ICO $7,880 for printing. The cost for mailing the newsletters by BTB Maillight was $2,130. The IOP has told us that they do the printing for the ICO at essentially their cost. They have suggested that to reduce printing costs that we consider sending CDs of the green book instead of a printed copy.

Finally, a somewhat longer term issue is a re-examination of the units that we assess each territory as a means of determining their dues. The current dues rate is based on $175/unit. The number of units for any territory varies from 1 to 18 units. The units that each territory is assigned are based on information from the World Bank on the economic status of the various countries. The ICO established the numbers of units many years ago but we feel that it is now time to re-evaluate the units assigned to each territory in light of economic changes since the units were established. We want to be certain that the units are assigned equably.

ATTACHMENT 2: IUPAP YOUNG SCIENTIST PRIZE IN OPTICS

General background

The International Union of Pure and Applied Optics (IUPAP) decided in 2005 to establish the IUPAP Young Scientist Prize that is separately available for all of the IUPAP Commissions and Affiliated Commissions representing the different fields of Physics. Each IUPAP Commission and Affiliated Commission may introduce the Young Scientist Prize in its field under the common set of guidelines set up by the IUPAP. These guidelines regulate the prize, eligibility, and selection procedure:

- The prizes are called the “IUPAP Young Scientist Prize”.
- Eligible candidates would have up to 8 years of research following the PhD, but time not spent in research would not be counted. Hence the Young Scientist Prize is an achievement prize for scientists in their early careers, i.e., the “young” refers to a person who is young as a scientist, not necessarily in age.
- The prizes are awarded through the Commissions and Affiliated Commissions
- The prize includes a certificate, a medal, and a cash award. The certificate is of a standard form, the citation (of up to 100 words) comes from the (Affiliated) Commission, the medal is provided by the IUPAP (one side is the same for each prize, the other side identifies the (Affiliated) Commission), and the cash amount is decided by the IUPAP, currently €1,000 for each prize.
- There can be 1 to 3 prizes per triennial period for each (Affiliated) Commission.
- The selection committee and the selection procedures are established by the (Affiliated) Commission. The selection process has to be open and fair.
- Presentation of the prize is to take place at an international IUPAP-sponsored conference through the (Affiliated) Commission.
- It is recommended that the conference registration be waived for the award winner and additional travel assistance can be obtained from elsewhere.

The International Commission for Optics (ICO) is an Affiliated Commission (AC.1) of the IUPAP, representing the field of Optics within IUPAP. In its meeting in Sydney in July 2008, the ICO Bureau decided to adopt the IUPAP Young Scientist Prize in Optics. It was further agreed that the IUPAP Young Scientist Prize in Optics (while an IUPAP prize) will be administered by the ICO in a similar manner as the three own ICO prizes and awards (i.e., the ICO Prize, the ICO Galileo Galilei Award, and the ICO/ICTP Gallieno Denardo Award).

Poster and announcement

Subsequently, a poster for the IUPAP Young Scientist Prize in Optics for the year 2009 was prepared and distributed by the ICO Secretariat (Angela Guzmán). The poster is appended at the end of this document. The new prize was also announced in the ICO Newsletter (see at the end) and advertized through various channels, including the ICO website. The deadline for nominations for the 2009 prize was July 15, 2009.

Committee for the IUPAP Young Scientist Prize in Optics

Furthermore, an ICO Committee for the IUPAP Young Scientist Prize in Optics for the triennial period 2008-2011 was set up. Its constitution is as follows:

Dr. Ari T. Friberg (Finland/Sweden, Chair)
Dr. Carmen Cisneros (Mexico, IUPAP representative)
Dr. Min Gu (Australia, Chair of ICO Prize Committee)
Dr. Yasuhiko Arakawa (Japan)
Dr. Duncan Moore (USA)

The role of this Committee is to propose the general rules and the nomination process for this prize, as well as select the winners for years 2009 – 2011, all to be approved by the ICO Bureau.

Specific rules applicable to the IUPAP Young Scientist Prize in Optics

In 2005, the International Union of Pure and Applied Physics (IUPAP) established the Young Scientist Prizes for its commissions. The international Commission of Optics (ICO), as an Affiliated Commission of IUPAP, decided in 2008 to adopt the IUPAP Young Scientist Prize in Optics. The IUPAP prize will be awarded annually through the ICO to an individual who in early career has made an outstanding contribution to applied optics and photonics. By the end of the year the prize is given, the awardee must have a maximum of eight (8) years of research experience following the doctoral degree. Career interruptions such as maternal leave or military service are exempted.

The Prize includes

- An IUPAP Young Scientist Medal, with the name and discipline (Optics) of the recipient engraved on the back.
- A certificate with citation.
- A cash award determined by the IUPAP (€1,000 in 2009-2011).

The Prize is awarded at a major ICO conference (endorsed by the IUPAP), where the recipient is expected to deliver an invited presentation.

Additional general information about the IUPAP Young Scientist Prize in Optics

The IUPAP Prize Committee is chaired (for the term October 1, 2008 - September 30, 2011) by Prof. Ari T. Friberg, Helsinki University of Technology (TKK), Department of Applied Physics, P.O. Box 3500, FI-02015 TKK, Finland, Phone +358 9 451 3127, Fax +358 9 451 3155, Email ari.friberg@tkk.fi.

Nomination instructions

(the same as for the ICO Awards – see http://www.ico-optics.org/awards.html)
(These instructions are taken from the ICO website – the formulation could be improved)

Nomination instructions for all ICO awards

Nominations should document all sections listed below

- Full name of nominee
- Nominator's name and address
- Nominator's signature, date
- Date of birth of nominee
- Business address
- Academic background, education (college or university, location, major field, degree, year awarded)
- Academic honors
- Employment history (position, organization, duties, dates)
- Publications, patents, unpublished reports, papers presented at meetings, etc. (attach a list of those you deem pertinent)
- Honors and awards
- Scientific achievements for which the candidate is nominated for this award: attach a separate sheet)

Notes:

- Nominators are encouraged to generate supporting letters; each supporting letter must come from a different country or ICO Territory and bring additional information on the case. The number of supporting letters will not be a selection criterion.
- The recipient will be expected to give a presentation based upon his/her achievements at the next appropriate ICO Meeting. The ICO/ICTP Gallieno Denardo Award winner will be expected to give a presentation at the next appropriate ICTP/ICO event.

Formal rules for ICO Rules and Codes

The IUPAP Young Scientist Prize in Optics is an achievement award established in 2009. It is an IUPAP prize administered by the ICO in a similar manner as the ICO's own awards.

General rules

The IUPAP Young Scientist Prize in Optics will be awarded annually to a scientist who has made an outstanding contribution to the field of applied optics and photonics and who by the end of the year the prize is given has a maximum of eight years of research experience (excluding any career interruptions such as maternal leave or military service) after obtaining

the doctoral degree. The contribution, which is measured by its scientific impact, must be clearly documented. The IUPAP Prize is strictly an achievement award for an individual in early career. The Prize will be awarded at an ICO conference that is endorsed by the IUPAP.

The IUPAP Prize involves:

a) An IUPAP Young Scientist Medal, with the name and discipline (Optics) of the recipient engraved on the back. The medal is prepared by the IUPAP and its front side is the same for all Commissions and Affiliated Commissions.
b) A certificate containing the citation (with a maximum of 100 words).
c) A cash award determined by the IUPAP. During the triennial period 2009-2011, the amount is € 1,000.

The recipient is expected to deliver an invited presentation at a major ICO conference and it is recommended that the registration fee for the awardee be waived. Additional travel support can be obtained from other sources but it cannot be used to increase the amount of the cash award.

Nomination and selection procedure

For each triennial period the ICO appoints an IUPAP Prize Committee. Every year the ICO issues and distributes a call for nominations with a nomination deadline. The nominations are to be made in accordance with the general instructions as published on the ICO website. The Prize Committee evaluates the nominations and recommends a winner for the approval of the ICO Bureau. The Prize need not be given every year if the Prize Committee or the Bureau so decide.

Eligibility for the IUPAP Prize is not excluded by previous prizes that may have been awarded to the individual. Provided the time limitations are satisfied, unsuccessful nominations are considered for two subsequent years after the initial nomination, but the Nomination Committee may ask for updates of the nomination documents. After three years, a re-nomination can be made if the eight-year time limit is met. The nomination and selection procedure must overall be fair and open.

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Delphi, Greece, 5 October 2009
Ari T. Friberg
Chair, ICO Committee on the IUPAP Young Scientist Prize in Optics

Period: 1. Oct 2008 – 30. Sept. 2010

1. Oct 2008 - 30. Sept 2009 (Period 1)	Date	requested by applicants	end./cosp. Grant/risk decision by ICO	representative: decision by ICO
Photonics Prague 2008, *Prague, Czech Republic*	27-29 Aug 2008	end. no money requ	**end. US$ 0**	Gert von Bally
10th International Conference on New Developments and Applications in Optical Radiometry (Newrad 2008); *Daejeon, Korea*	13-16 Oct 2008	end. no money requ	**end. US$ 0**	Yoon Kim
International Topical Meeting on Information Photonics 2008; *Awaji, Hyogo, Japan*	16-20. Nov 2008	end. no money requ	**end. US$ 0**	Yasuhiko Arakawa
PHOTONICS 2008 9TH International Conference on Fiber Optics and Photonics, *New Delhi, India*	14-17 Dec 2008	cosp. US $ 5,000	**end. US$ 1,500**	Ari Friberg
VI International Workshop TECNOLASER 2009 and II Meeting Optics, Life and Heritage; *La Habana, Cuba*	13-16 Apr 2009	cosp. US $ 3,000	**end. US$ 2,000**	Gert von Bally Maria Calvo
4th Asian and Pacific Rim Symposium of Biophotonics (APBP 2009); *Jeju island, Korea*	27-29 May 2009	cosp. US$ 5,000	**end. US$ 1,000**	Min Gu
12th International Conference on Photorefractive Materials, Effects and Devices - Control of Light and Matter; *Bad Honnef, Germany*	11-14 Jun 2009	cosp. US. $	**cosp. US$ 1,000**	Cornelia Denz
Nanophotonics Down Under 2009: Devices and Applications; *Melbourne, Australia*	21-24 June 2009	end. US$ 1,000	**end. US$ 1,000**	Min Gu
Education and Training in Optics and Photonics, ETOP 2009, *St. Asaph, North Wales, UK*	5-7 July 2009		**cosp. US$ 2,000**	John Love
International Conference "Micro- to Nano-Photonics II - ROMOPTO 2009, *Bucharest, Romania*	31 Aug - 3 Sep 2009	cosp. US $ 2,000	**cosp. US$ 1,500**	Valentin Vlad
The Ninth International Conference on Correlation Optics "Correlation Optics'09"; *Chernivtsi, Ukraine*	20-24 Sept 2009	cosp. US $ 3,000	**end. US$ 1,500**	Maria Calvo
			US $ 11,500	

ct 2009 - 30. Sept 2010 (Period 2)

Topical Meeting, *Delphi, Greece*	7-9 Oct 2009	cosp. US $ 6,000	**cosp. US $ 2,000**	Maria Calvo
orkshop on Lidar Measurements in Latin America, nos *Aires, Argentina*	30 Nov-4 Dec 2009	cosp. US $ 3,000 - 5000	**end. US$ 1,000**	Angel de Frutos
cs and Lasers in Science and Technology for tainable Development, LAM 9 International kshop and EBASI 7 Conference; *Dakar, Senegal*	11-16 Jan 2010	cosp. US$ 3,500	**cosp. US$ 1,500**	Ahmadou Wague
E Photonics Europe, *Brussels, Belgium*	12-16 April 2010	cosp. US$ 7,500	**cosp. US$ 2,000**	Gert von Bally
International Conference on Optics-Photonics ign & Fabrication "ODF 10", *Yokohama, Japan*	19-21 April 2010	cosp. 0 US$	**end. US$ 0**	Yasuhiko Arakawa (TC CommChair Japan)
O/Optilas 2010: VII Ibero-American Conference on cs (RIAO) & Latin-American Meeting on optics, r and Application (OPTILAS). Lima, Peru.	20-24 Sept 2010	cosp. US $ 3,000	**cosp. US $ 2,000**	Angela Guzman
LS 11, 2010, *Quebec, Canada* (in preparation)	28-30 Sept 2010	cosp. US $ 4,000	**cosp. US$ 1,500**	Gert von Bally
			US $ 10,000	

MINUTES OF THE ICO EDUCATION COMMITTEE MEETING

Held at ICTP, Trieste, Italy, on February the 12th 2009.

Chair: Zohra Ben Lakhdar

Secretary: A. M. Guzmán

Attendants: J. Niemela (ICTP), M. Yzuel (SPIE), M.L. Calvo (ICO), A. Friberg (ICO), R. Ramponi (EOS), A. Wagué (LAM Network), V. Lakshmarinayan (OSA), Prof. Karembo (Director of Education, Ruanda), A. Consortini

Presentation by Zohra Ben Lakhdar:

Objective of the meeting: To establish the vision and priorities for the ICO Education Program for the period 2009-2011.

Key functions of education are:

1. Production of knowledge through research
2. Choose the topics of knowledge transfer -acquisition

The UNESCO's Workshop on Active Learning in Optics and Photonics (ALOP) is based in the active learning method that consists essentially of four stages: prediction, activities, discussion, synthesis. The ALOP Manual is available already in English and French. The Modules are designed with topics linked to the all day experience of human beings (optics of the eye, optics of the atmosphere, etc...), ftom the point of view of science. There have been already several ALOP Workshops: Ghana 2004, Tunisia 2005, Morocco 2006, India 2007, Brazil2006, Tanzania 2007, Mexico 2007, Zambia 2008, Cameroon 2008, and there will be two to take place in Colombia and Nepal this year.

From the many ALOP Workshops there has been considerable feedback. Specially in Africa, there is already a group of local trainers, that have organized 7 local workshops. This year the workshops in Africa –particularly Morocco & Tunisia, are involving high school teachers and students

For the period 2009-2011, there is the need of developing new modules for continuing the development of optics knowledge through education and training.

In Tunisia there has been established a Committee for science and society initiative. ALOP is one of the activities of the committee but is not the only one. The ICO Education Committee could help further developing ALOP activities, but should also do other activities intended to cover all over the world and not only developing countries. An initiative for more transversal than punctual activities is required.

Discussion:

Ari Friberg recommends keeping in mind that ICO is a political organization. ICO is neither a research or academic institution, nor a funding agency for research, education or teaching. ICO is a political organization. ALOP activities could fit within ICO appropriate goals, if ALOP constitutes one way to influence policy in developing countries. The Education Committee should also perform other activities more oriented to look for support and for enhancing ICO's global role in Education policies. To organize and find support and continuity for the ETOP

meeting should be one of the goals in the agenda of the education committee. Technical details about methods in education should be dealt within ETOP.

Prof. Karembo from Ruanda mentions that In Africa there are many countries that do not even offer a degree on physics.

M.L. Calvo: ICO has to be fully incorporated in the laser celebration.

A. Friberg: (IUPAP): Physics education research is expanding rapidly most in the USA and is not done in the education departments but in the physics departments. The research is more towards the results. The education committee has to get involved. In Seattle, Pittsburg, etc, in the line of Weiman. ALOP, Thornton, Sokoloff, do research on how to reach and evaluate people. How we transfer knowledge.

R. Ramponi mentions that the perception in Europe of the importance of optics is very poor. A policy problem for ICO would be how to reach the public opinion? There have been initiatives like the German LUKAS LAND OF DISCOVERY, a fairy tale for kids to play with optics. In Italy there is LEGO for optics, and an exhibition called "The fascination of light". The difficulty is to find a way for these tools to reach a large number of children.

J. Niemela mentions that around 400 kids attend the ICTP's open day.

Z. B. Lakhdar mentions that they intend to reach the families through the children but they are also organizing a workshop for women to teach them simple optical phenomena, through things that are common in a kitchen.

M.Yzuel: The mission of the Education Committee should be to coordinate activities happening all over the world, like those taking place in Germany, and distribute the information to all members of ICO. In her University there are activities for teens. In general the OSA and SPIE student chapters collaborate with those activities. In Mexico there is a children day with mirrors and kaleidoscopes. The role of the Education Committee should be to communicate with the education committees from other societies. The mission of the Committee is to act at the international level. The Committee should include ETOP to be the motor of the initiatives. In the past the committee was supporting distribution of donations to ICTP and developing countries. The Committee could for example negotiate access through ICO members to the digital library of ICTP. INSPIE has offered access for developing countries, the Committee could do an effort to publicize these facilities and let people know about how to use them.

A. Consortini: In Gernany the politicians have created a PhD in applied optics. Florence has an open lab where students from school can do some experiments. There is no culture of optics. ICO should try to do policy.

Z.B.Lakhdar: She would like to collect seminal papers in optics and publish a CD, to be distributed within ALOP participants to give them guidance to attempt more experiments by their own.

J. Niemela: ICTP has organized a workshop for teens (16-18) on how to develop a project. NSF did the "stars program", where teens go to the University for 8 weeks, have lectures in actual topics and choose a mentor to work in an experiment during 2 months. These programs have been very successful. Some of the work turned into publications. The Education Committee could coordinate a global teenager activity, where teens get the same project to be done in different countries at the same time, with mentors.

R. Ramponi: Her University has a program for young students in the lab. During one week students come to visit the university, attend lectures, and visit a lab.

J. Niemela: One has to learn how to talk to kids about science. Show them that scientists are people. Look for a source with some instructions about how to talk with kids.

R. Ramponi: The American websites with experiments use an instructor telling the kids in a very precise manner the purpose of the experiments and what has to be done.

Actions related to ALOP:

1. A MoU between UNESCO & ICO for ALOP has been proposed. On an informal basis ICO is considered to be a partner in ALOP, but there is no MoU. A draft MoU is an important official commitment to warrant continuity.

2. The name of ALOP has to be registered.

3. An official website for ALOP must be created. Discuss this issue and the possible hosting entity (ICO webpage, OSA, SPIE) with Minella Alarcon.

4. New ALOP modules: (i) Telescope module. (ii) Impact of lasers. (iii) Holography & Fourier optics and image processing. (iv) Optical phenomena in the atmosphere (why the stars are twinkling).

5. Workshop for teens in Tunisia. In ICTP there have been activities for teens where they asked to write an extended essay from reading the literature. A mentor helps to fill gaps.

Summary of policy actions proposed for the Education Committee:

1. Find ways in which ALOP can influence education policy in developing countries.

2. Help ICO find ways to celebrate the 50th anniversary of the laser (2010).

3. Give support to ETOP, and work to make of the conference the motor for ICO initiatives on education. Promote participation in ETOP.

4. Collect information on activities and initiatives, and distribute it to all I CO Members.

5. Communicate with the Education Committees of all ICO Member Societies.

6. Support and coordinate distribution programs of donations to ICTP and developing countries.

7. Publicize opportunities like free journal access given by SPIE to developing countries.

8. Collect information on active webpages and experiments on optics and make the link to this webpages through the ICO webpage. Develop the data basis.

9. Look for ways to awake worldwide awareness on the fast expansion of education research in physics, and the need for participating in this education revolution.

First verison by ICO Secretariat, Mar ch 2009
Final Version, February 2010

MINUTES OF THE 2010 ICO BUREAU MEETING

Held in L'Institut d'Optique, Palaiseau, France
Saturday, October 30, 2010 from 9:00AM – 7:00PM

Members Present:

Arakawa, Y., Bingkun, Z., Calvo, M.L., Friberg, A., Gu, M., Guzmán, A., Harrington, J., Khoo, I.C., Ben Lakhdar, Z., Mendoza Santoyo, F., Moore, D., Ramponi, R., Stahl, H.P., Strickland, D., Von Bally, G., Szoplik, T., Wague, A.

ICO Administrative Secretary: Troshinsky, M.

Invited Senior Advisor: Chavel, P.

Apologies for absence have been received from: Cisneros, C., Lefevre, H., Oron, M.

1. Call to order 9:30AM

Maria L. Calvo, ICO President, opened the session. She thanked all the attendees for their presence.

Motion 1: (Moved by M.L. Calvo, seconded by G. von Bally, approved unanimously).

The ICO Bureau approves the minutes of the previous Bureau Meeting held in Delphi, Greece October 30, 2009. Approved.

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2. President's Report (10/1/09 – 9/30/10): ICO President -- M.L. Calvo

On behalf of the ICO, ICO President M.L. Calvo, was very involved in LASERFEST in 2010 which celebrates 50 years of laser innovation. A logo was created for this momentous anniversary. The goal was to share this unique anniversary with the world optics and photonics community.

ICO President M .L. Calvo reported on the activities aimed to maintain ICSU-ICO (International Council of Science) links. ICSU is linked to the United Nations and as such to UNESCO. M.L. Calvo maintained contacts with the ICSU Review Panel on Science Education. ICSU has at present a complex structure with various review panels. There were contacts with the Mexican representative in particular in the mentioned review panel. As for national organizations, there is an ICSU Community in Spain, which is financed by the Spanish Ministry of Science and Innovation. M.L. Calvo also had contacts with IMU. ICSU grants are $30,000 per year and she is hopeful to apply for a grant in 2011 (in collaboration with IMU and/or other unions).

In December 2009, M.L. Calvo attended the International Days dedicated to Galileo Galilei, celebrating the International Astronomy Year. This was held at SPRIT (Private Technical School for Engineering) in Tunis, Tunisia, under the initiatives of the Tunisian Optical Society, directed by Zohra Ben Lakhdar, current Chair of the ICO Education Committee.

In January 2010, M.L. Calvo attended Photonics 21. A new edition of the strategic research agenda entitled "Towards a Bright Future for Europe" was given to the representatives of the

European commission. Additionally, the Photonics 21 Work Group 7, dedicated to education, chaired by Roberta Ramponi, had a meeting to discuss current activities.

In February 2010, M.L. Calvo attended the Winter College in Trieste, Italy and the TSOSA Meeting, the advisory committee to the Trieste System on Optical Sciences and Applications, which involves representatives of several international societies.

In April 2010 she attended an ICO sponsored event/SPIE activity: SPIE Photonics Europe. She also attended an ICO sponsored meeting hosted by the Optical Society of Morocco in Tangier entitled OPTIQUE 2010.

In September 2010 she attended the ICO sponsored RIAO-OPTILAS in Lima, Peru. She was invited by the Council of RIAO. A highlight of the conference was the ceremony organized by the RIAO Council for the official launching of the Ibero-American network in Optics, to which ICO was invited along with dignitaries of OSA, SPIE and colleagues Latin America, Spain and Portugal.

In October 2010, there was a joint venture between EOS and ICO to organize the ICO/EOS Topical Meeting on Optics & Energy, TOM 7 inside of EOSAM in Paris, France. This event was ICO and IUPAP sponsored. A substantial grant was received from IUPAP that brought in 9 participants from Africa and 1 participant from the Ukraine.

Other activities in the works: M.L. Calvo is in the preparation stages of producing a CD to be launched by August 2011 at ICO-22 Puebla. It will include selected experiments of the 20th century aimed to understand coherence properties of light. The aim is to make an order of 300 CDs at a low or zero cost. Most likely they will be sold for $6.00 each if approved. M.L. Calvo and Z. Ben Lakhdar will make this CD along with colleagues from Colombia – primarily with those who teach on a first and primary level. There was a concern that pricing might turn out to be more expensive in the end, but there will be a concentrated effort on how to make the CDs less expensive.

3. Secretary's Report: ICO Secretariat -- A. Guzmán

A. Guzmán's regular activities this year included: composing editions of the ICO quarterly newsletter; distributing announcements for prizes; coordinating award ceremonies, diploms and medals; distributing the ICO informational triptic; and promoting activities encompassing the Year of the Laser (partnered with many institutions). She edited a series on the history of lasers that opened with a special contribution from Anthony Siegman, and followed with an article by Mario Bertolotti, both worldwide recognized experts on the history of lasers. She also obtained contributions from authors from the former Soviet Union. The series has been well received.

A. Guzmán has continued working with SPIE to keep the ICO webpage updated however there is a current logistics problem: due to security issues SPIE cannot grant direct access, and updates have to be mailed to SPIE's webmaster. She has been in conversations with EOS in order to transfer the ICO website to the EOS server, which would allow working with a different scheme that gives her direct access to the webpage.

A. Guzmán maintains the Blackboard site for ICO, which serves as digital ICO archive. All documents sent to the ICO Secretariat, including IUPAP and ICSU information, or prepared by the ICO Secretariat are loaded there. The members of the Bureau have access to former minutes and mailing lists. Blackboard also offers teleconference facilities through Illuminate.

A. Guzmán records all minutes of important meetings she attends, i.e. ICO Bureau, ICO Education Committee, TSOSA, etc. She collects and maintains all MoUs and collaboration efforts with the OSA Foundation, ETOP, UNESCO/ALOP, the European Physical Society (EPS), and ICTP & TSOSA Advisory Committee. Pertaining to ICO-EPS, a "Year of Light" was proposed to UNESCO, and all parties involved are in agreement to continue moving forward. However, the idea first must be submitted to IUPAP. Regarding UNESCO/ALOP, A. Guzmán is acting motu propio as the UNESCO's coordinator of the program in Latin America. The way to spread the program through Latin American would be through UNESCO regional offices, in particular the Montevideo office which is in charge of Science and Engineering. Maciej Nalecz, Director of the UNESCO's Division for Basic and Engineering Sciences offered to help establishing appropriate contacts with the regional offices. A.Guzmán has focused on spreading the activities of ALOP in Latin America this year. The process of trying to organize ALOP Peru and an ALOP Latin American Team of facilitators is in progress. There is also a proposal for ALOP Bogota 2, using Colombia's current model for local ALOPs.

ICO membership: A. Guzmán had the opportunity to talk with the Peruvian community during RIAO-OPTILAS in September 2010, and suggested them to organize in order to become ICO Territory. There are other prospective new territories that may join ICO: Portugal and Armenia. She has also promoted ICO in Chile. , as well as a newly established international organization entitled RIAO.

Assignment of units for ICO Territories: There are ICO members that are in arrears. Suggested, is a proposal for reassignment of units based on the use of the H index for countries (see attachment 1). This H index is specific for atomic and molecular optics and physics, and is based on publications and scientific activity, with data from 2008. The attachment shows two different normalization possibilities. ICO is using a pre-defined formula set by IUPAP. However, IUPAP does not have strong rules. When a country sends an application to adjust its units, it is simply read with flexibility. IUPAP also has a policy of discounts intended to attract new territories to join. Guzmán has asked IUPAP about the possibility of reassigning units. She is waiting for an answer. Discussion: Issues to be considered: 1. Possible reallocation of units for Member societies. 2. Avoid creating a stir with countries that might need to pay more. 3. Can a country request that their units be decreased? 4. How often could the allocation of units be changed. 5. To change the allocation we need to change article 4 in the ICO Green Book (page 180, entitled "Shares and Votes") and put the suggested change on the agenda to be voted on by the General Assembly in Puebla.

Motion 2: (Moved by H.P. Stahl, seconded by D. Moore/M. Gu, approved unanimously).

Prepare a new article 4A to define how ICO shares are assigned; the frequency of when they are calculated e.g. every 3 years or 6 years. Territorial Members may request to increase or decrease their shares per the allocation. Note: The text has to be approved by the ICO General Assembly and by the IUPAP.

4.ICO Headquarters address as a French non-profit organization

Motion 3: (Moved by J. Harrington, seconded by I.C. Khoo/ D. Moore/M. Gu, approved unanimously).

Change the mailing address of the ICO Headquarters to the new official address of L'Institut d'Optique, in Palaiseau, France from its old address.

Institut d'Optique Graduate School,
Campus Polytechnique - RD 128
2, avenue Augustin Fresnel
91127 PALAISEAU Cedex – France

5.Short Presentation of the Institute d'Optique – Invited Senior Advisor -- P. Chavel

A presentation was given by Dr. Pierre Chavel on the background and history of L'Institut d'Optique as well as its connection with the ICO. L'Institut d'Optique is an institution that was created to conduct higher education, research in applied optics, and basic education. They have a technology training office. They offer multiple MS degrees and award approximately 15 Doctoral degrees per year.

Archived photographs from the ICO were shown. The picture of ICO-0 from 1947 in Prague (see page 19) was shown with people from 11 different countries.

A brief history of the facility was given. L'Institut d'Optique was founded by Charles Fabry in 1917, and built its first building in 1927 in Paris. L'Institut d' Optique moved in 1965. They still have this building and lease space to optical companies.

In 1996, the ICO determined that it would be useful to handle ICO money transfers to and from some countries from outside of the United States. Thus, ICO was established as a non-profit organization in France with its headquarters hosted by L'Institut d'Optique. It proved to be economical for as few money transfers as possible. An account was then opened at Caisse d'Epargne ile de France in Paris.

In 2006, L'Institut d'Optique moved to its new building. The newer facilities of L'Institut d'Optique were highlighted to show the current facilities accessed within L'Institut d'Optique. The old building's address is still used as official ICO headquarters, however, this address is no longer recognizable within the French postal system and ICO mail sent to this building's address gets rejected.

Thanks were given by ICO President M.L. Calvo for this very informative presentation. An "Outstanding Leadership Recognition" was presented to Pierre Chavel, ICO Secretary General 1990-2002, and Senior Adviser "ad personam" during the terms 2002-2005 and 2005-2008, in appreciation for his outstanding and dedicated service to ICO and the advancement of optics worldwide. The Bureau in plenum thanked Pierre Chavel for his assistance and hospitality in organizing the ICO Bureau Meeting facilities and receptions.

6. Financial Matters – ICO Treasurer – J. Harrignton

6a. MoU with OSA Foundation

The ICO is not a 501C3 in the USA (It is a non for profit 501C4 organization but it is not tax exempt). As it stands, donors to ICO have to pay taxes in the United States on the donated money. The MoU with the OSA Foundation allows ICO to solicit donations. The text of the MoU is attached. (Attachment 2).

6b. Report on Consolidated Accounting and ICO Territories in arrears

The balance sheet as of October 1, 2010 was presented (attachment 3). ICO has a very strong cash balance. Most of the money is in the US account and some money is in the Paris account. The balance, of course, rises, as dues are paid. Only 20 out of 53 Territories paid their dues this year. There are many Territories who owe ICO a lot of money and some Territories who owe beyond 10 years worth of dues. The liabilities are listed on the report. Among those territories that have not paid, some do not respond to outreach and some cannot accept an email invoice. When the postal system is used, sometimes we do not have the correct address.

6c. Proposal for an ICO strategy to deal with ICO Territories in arrears for more than 5 years

In the list is a report of money owed to ICO. What are we going to do about this problem? Maybe we need to eliminate countries from ICO? What do we do about countries that just cannot pay at all? Would someone else be willing to pay for them? A territory that does not pay should have a deduction from conference fees when they request conference assistance from ICO. There is concern that retained earnings could drop.

A case in point, Z. Ben Lakhdar says that transferring money is difficult. She never gets the invoice that is sent to her. It is much easier to pay in cash. Another case in point, A. Wague of the LAM network "Laser, Atomic, molecular, and optical sciences" says that making a transfer for a small amount of money is not a good idea for some because of fees assessed to the transfer. He prefers to pay in cash as well. ICO needs to take this into consideration.

It was suggested that if you are not a member of ICO you should not be supported by ICO like in the past. Some countries have asked for conference support and never paid any ICO dues. But what if there is a good application for a conference? We should not turn it down. The wording must be chosen carefully for rules pertaining to this because if those in arrears cannot ask for support, but those who are not a member at all can ask for support, this is not logical. We could take money from the proposed conference support when they apply for the conference.

Instead of "punishing" the country, are we addressing the right person to get the funds from? D. Moore sees no reason not to demote countries to Associate status for those countries in arrears.

Perhaps different situations among the countries should be treated differently. Each Territorial Committee that exists needs to make sure that they cover the whole optical community within their respective countries. The new country must become active through a Territorial Committee and then be encouraged to look and see that they are covering the whole optical community.

S. Sawchuck, the previous ICO Treasurer, did not operate on a regular basis and certified information on the actual status of the invoices was unfortunately missing. Thus the previous records are not sufficient. The ICO pays for travelling lectures, conference support, and prizes/awards. Total liabilities are $16,754. There was some concern among ICO Bureau

members that they have not seen enough data to be comfortable with the baseline accounting. The spreadsheet needs to list what was written off to get the baseline. J. Harrington says that this accounting is the correct accounting and should be the official accounting.

Who really represents the Territorial Committee? We should officially contact the National Academic Societies of these countries or the corresponding official institution that represents the ICO in that territory. Each Territorial Committee must be contacted and they must prove that they are covering the entire optical community within their respective countries. We have already made a list of members for the board to select which Territorial Committees need to be contacted by standard email each year, so we know if there are changes. There should be personal contact from a Bureau Member to the Territorial Committee Representative. The new society should not take over the debt of the old society.

LIST OF ACTIONS

1. Reminder needed to look into the list and see which Territorial Committees they want to contact. Send regular reminders.

2. Remind all Territorial Committees where we do have addresses on file that they have to cover the whole optical community in their respective country.

3. Send letters to Territorial Committees in arrears declaring that their rights will be lost if their dues are not paid.

Motion 4: (Moved by D. Moore, seconded by F. Mendoza, approved)

At Puebla a presentation on the dues in arrears will be made by the Treasurer so that the baseline for accounts receivable can be established.

Motion 5: (Moved by H.P. Stahl, seconded by I.C. Khoo, approved)

Territorial Committees which are in arrears on their dues for more than 5 years will have their membership status demoted to Associate status. This means no shares, no votes, no officer on the Bureau, and no ability to ask for financial support.

7. Committee Reports, except prizes and awards

7a. Long Range Planning Committee – Maria L. Calvo, Chair

We would like to obtain representation among the developing economies that have poorly organized groups or lack an official representative society. We need help bringing some of these territories into ICO. If they do not have enough representation to make a committee, how does ICO accept them? Provided they can get enough interest expressed, they can then join or keep on with reduced membership. We however, cannot consider them on an equal platform. IUPAP fees are higher than ICO. Our fee is minimal. We have ICO forms to apply to ICO to facilitate the task. They must keep in close contact and coordination with the Secretariat. A financial model may not be sustainable.

Initiative with ICTP to organize a school in Costa Rica in order to promote Optics and laser safety in Central America.

7b. Committee for the Regional Development of Optics (CREDO) – Duncan Moore, Chair

There was a main focus on entrepreneurship in South Africa. There were 55 people from 13 countries. This was an exhilarating experience. Students did not know about business plans at the start of the meeting on Monday, and by Friday they were pitching ideas. These ideas were not just from a scientific standpoint. The people who went to Trieste who could afford to go to that meeting were not the ones who wanted to start a business. So the program went to Argentina, for a tech transfer office. Now the program is going to Jordan in March, and then to the Philippines. It is good to do, but quite redundant. We might want to get involved in an associate way, i.e. pay some money, get our name associated with it, and get optics people involved. It is wonderful to see these young people in these entrepreneurship activities. A representative from IOP will contact A. Guzmán with details. Discussion: What can we say about relevancy of ICO with this?

7c. Nominating Committee – A. Friberg, Chair

The Nominating Committee consists of A. Friberg, A. Consortini, R. Dandliker, C. Dainty, J. Love, and B. Saleh. Letters regarding the new Bureau and explaining the procedures will be sent by email and by hard copy mail to all ICO Territories in good time before the elections. A nomination is required to be on the Bureau. Make sure your Territorial Committee (or any other Territorial Committee) nominates you. You need, however, an endorsement from your own Territorial Committee if you were not nominated by it. Nominations by the Nominating Committee are acceptable as well. The nominations received are then collected by the end of June 2011, and endorsements of by ICO Territories are requested. Nominations are allowed until 24 hours before the actual elections, which traditionally take place at the 2nd General Assembly during the Congress[5] . We need high caliber nominations for all positions of the Executive Committee (except for Past President, of course) and for Vice Presidents, with a good representation of geographic and scientific areas. By statutes we also need two Vice Presidents representing industry.

Letters will be sent also to all ICO International Organization Members (IOM) at least six months before the elections, to request appointment of the representative Vice President. We currently have 6 IOMs. By October 1, the new Bureau (those elected and appointed) must be in place.

7d. Education Committee – Z. Ben Lakhdar, Chair

Concern was expressed for the continuation of ALOP activities when the person in charge, Minella Alarcon, is retiring. We need more ideas on how to build experiments and how to interest students in optics. There are no institutions for this at universities. It is difficult to wire money for support. There are time constraints and a level of difficulty. We need to have a project for involved students to get other students involved. Schools need interaction with industry. We could develop a newsletter for African students. Other possibilities are welcome.

7e. Traveling Lecturer Committee – J. Harrington, Chair

[5] Note: At the time of writing these Minutes the 2nd General Assembly is schedules 17 August 2011, Puebla, Mexico.

This year we have only awarded one Traveling Lecturer award and that was to Maxim Tomilin. We only received one application. We need more. In fact, sometimes we get people that apply that have already received the travel funds previously.

8. Reports of Liaisons with Territorial Committees, Member Societies, & ICTP

8a. International Societies

EOS: R. Ramponi gave an update in terms of the European Optical Society (EOS). There are 22 member societies, 10 branches, and 12 affiliated societies. There are 6,000 in Europe and worldwide. New for 2009 was the addition of the Latvian Optical Society (LOS), the Ukrainian Society of Pure and Applied Optics (USPAO) and the Rozhdestvensky Optical Society (ROS). New for 2010 was the addition of the Portuguese Society of Optics and Photonics (SPOF).

EOS continues with their publications: the JEOS: RP electronic journal, and the EOS member newsletter.

EOS events for 2009 included the 4th EOS Topical Meeting on Advanced Imaging Techniques 2009, the World Photonics Congress 2009, the 1st EOS Topical Meeting on "Blue" Photonics – Optics in the Sea, the 3rd EOS Topical Meeting on Optical Microsystems (OMS09) and the 1st EOS Topical Meeting on Lasers.

EOS events for 2010 include the EOS Topical Meeting on Diffractive Optics 2010, the 5th EOS Topical Meeting on Advanced Imaging Techniques 2010, the Conference on Laser Ablation and Nanoparticle Generation in Liquids (ANGEL 2010), the EOS Symposium on Trends in Optical Technologies (ESTO2010), the 5th EOS Topical Meeting on Visual & Physiological Optics, and the EOS Annual Meeting 2010.

EOS events coming up in 2011 include 2nd EOS Conference on Manufacturing of Optical Components (EOSMOC 2011), the 1st EOS Conference on Optofluids (EOSOF 2011), the 1st EOS TOM on Photonics for Sustainable Development – Focus on the Mediterranean (PSDM 2011), the 2nd EOS TOM on "Blue" Photonics – Optics in the Sea, the 2nd EOS TOM on Lasers & 4th EOS TOM on Optical Microsystems, and the 2nd EOS Topical Meeting on Diffractive Optics (tbc.).

Elections were conducted to form the EOS Board for the period 2010-2014. The EOS Prize of 2009 had 2 awardees and the EOS Prize of 2010 had 1 awardee. EOS had 7 Fellows for 2009 and 8 Fellows for 2010.

EOS also produces a brochure and web gallery which is a collection of ongoing and future research projects conducted by researchers from European research institutes, companies, and universities. Both publications are aimed at scientists, politicians, and the broad public (lobbying activity).

IEEE Photonics Society: I.C. Khoo gave his report on USAC/ICO, and most of the information is on the website. Through a few discussions, he is trying to bring more publicity to USAC/ICO. There are 3 Society Directors to establish awards for papers to be awarded during the annual meeting of the 3 societies. Most of this work is not done in IEEE, but in USAC/ICO. There has been a lot of publicity for this. Hopefully the new Director of the IEEE Photonics Society will perpetuate this and promote it. The next person taking over USAC/ICO

will see what has been done in the last 3 years. They will be bringing in the ex-President into the USAC Committee.

LAM Network: A. Wague gave his report on the LAM network. They have a scientific exchange visiting program. They had a workshop in Cape Coast, Ghana on multispectral microscopy. After the meeting, every person went back to their respective country with equipment

OSA: D. Strickland gave her report on the OSA. The OSA is almost 100 years old. Their goal is promoting worldwide knowledge. The membership has changed in the last 10 years. There is a push for developing nations to only pay half of their dues to be members of OSA. The number of student chapters is growing in leaps and bounds. There are currently 195 student chapters. Youth education outreach is of utmost importance. There is an international OSA network of students. There are partnerships and international outreach.

The OSA Foundation was established in 2002 to create a permanent place for charitable giving within OSA and the optics community. There are many Foundation programs in developing countries. The ICO and OSA Foundation are working to finalize a "Fiscal Sponsorship" agreement, which will enable donors to make tax-deductible gifts to the OSA Foundation in support of ICO programs.

OWLS: M. Gu gave his report on OWLS. OWLS 11 was in Quebec. It was very successful and they had 107 participants. ICO funds were used to help with poster presentations.

There is a new OWLS President. The new President is from the Italian Institute of Technology. M. Gu is still the Vice President. The next OWLS Congress will be held in Italy in 2012. Next year there will be a workshop in Italy -- Biophotonix 2011. They have been working with Wiley on biophotonics, advanced optics, and microscopy. The new meeting in 2012 may become an issue with the new board.

SPIE: H.P. Stahl gave his report on SPIE. Elections were held. The new elected President is Katerina Svenberg. Bill Arnold has been elected Vice President. The Board of Directors has appointed a new ICO Vice President, Maria Yzuel. She will start when H.P. Stahl ends. This change goes into effect in 2011.

8b. TSOSA Advisory Group – A. Guzmán – ICO Representative and Chair of TSOSA

Fernando Quevedo is the new Director of TSOSA. The annual Winter College has 230-240 applications for the next meeting, which will take place in February 2011.

8c. IP Steering Committee – M.L. Calvo

The next IP Meeting will be in May 2011 in Ottawa hosted by the National Research Council of Canada. During this occasion there will be a meeting of the Steering Committee to reactivate this Committee. M.L. Calvo invited the Chinese Optical Society, the Korean Optical society, etc. We need to reactivate the Steering Committee and look for a bid for 2013. ICO support was increased from $2,000 to $2,400 for this event.

8d. ETOP – Z. Ben Lakhdar

Z. Ben Lakhdar gave her report on ETOP. The European community tried implementing the Photonics Explorer. Through this program young students can be trained in optics and

photonics and can prepare to be teachers. Field experimentation of kids will be put into action. Could there be a little grant for students for such an event as ICO meets OSA meets SPIE? We need to get students interested in creating a student chapter. Is it possible to get these organizations to help develop activities in optics and photonics in their countries? Even though one may pay the fee nothing is done in the country. It may be good to have a student chapter supported by ICO. There should be a type of program to develop optics.

8e. RIAO's application to become an ICO International Society member

A.Guzmán presented the application of the Iberian American Network on Optics (Red Iberoamericana de Optica, RIAO) to be admitted to the ICO as an International Society. This application was submitted by Dr. Eric Rosas, President of the Mexican Academy of Optics.

Eric Rosas sent an application to ICO referring to the possibility of accepting this organization as an international society of ICO. ICO needs to answer something to the network and so we should recommend it to General Assembly.

Discussion: What are the definitions/requirements for admitting an International Society? We arrived to the conclusion that 20% of the members cannot be from the local society.

A. Friberg has reservations about admitting it as an International Society for the following reasons: (1) this is an Ibero-American Network. We learned today that Portugal has become a member of the European Optical Society. This means that Portugal already has one foot in the door. Now Portugal and Spain would be represented through two societies – Europe and Ibero-American. Portugal and Spain are not Latin America. (2) He objected that the application was signed by some Territorial Committees.

Counterargument: The United States for example, has many representations. A lot of societies have MoUs with OSA, etc.

R. Ramponi mentions the EOS is a federation of European societies. In this regard the RIAO that groups the Mexican Academy of Optics, the Colombian Network, the Spanish Optical society, and other local organizations would be similar.

Gert von Bally suggests that we could require that the representative be from Central or South America.

Guzmán mentions that the RIAO is the result of ICO's work in Latin America for more than 12 years. The Latin American community welcomed Portugal during the RIAO/OPTILAS in Peru. Portugal is just starting out. It took a long time to get this going. You have to think if you want to say no to all other countries other than Spain and Portugal. The Iberian American Network has its roots in RIAO/OPTILAS, conference that was the result of merging RIAO and OPTILAS, following the advice of ICO in 1998. Ari Friberg, Maria Calvo and Angela Guzmán have been working for years on promoting this organization. The fact that for historical reasons Latin America has decided to group with the Iberian Peninsula should not inhibit ICO to welcome this effort.

Ari Friberg does not agree with an organization that involves Spain and Portugal. R. Ramponi mentions that it is not ICO's role to require that Spain and Portugal be kicked out of the organization.

P. Stahl asks for the qualifications to be an International Society Member. Specifically for how long does it need to exist before it can become an International Society.

Maria Calvo comments that Spain organized one of the first RIAO Meetings in Barcelona in 1992, chaired by Maria Yzuel. Portugal has no Territorial Committee in ICO. It was formerly a member, but then that committee collapsed.

D. Moore suggests making recommendations to have better grounds to take a decision.

RECOMMENDATIONS

1. Stahl recommends setting up a process that allows defining how to add new International Societies.

2. Von Bally recommends that the Territorial Committees should be supportive when starting an international organization but should not be part of the international Organization when grounded.

9. Liasons to ICSU and IUPAP

10. Awards

10a. ICO Prize Committee – M. Gu, Chair

M. Gu presented his report on the nominees for the 2010 ICO Prize. There were 6 nominees this year and all were very good. They had a big record of publications and citations. M. Gu recommends that Dr. Reinhard Kienberger from the University of Michigan be awarded the 2010 ICO Prize for his "breakthrough work in attosecond science and its applications in metrology and spectroscopy."

Motion 6: (Moved by M. Gu, seconded by F. Mendoza, approved unanimously).

The ICO Proze Committee proposes to award the 2010 ICO Prize to Reinhard Kienberger for his "breakthrough work in attosecond science and its applications in metrology and spectroscopy."

10b. ICO/ICTP Award Committee – A. Wague, Chair

A.Wague did not have a winner to announce yet for the 2010 ICO/ICTP Award, however he will soon send the results to the Secretariat.

10c. Galileo Galilei Award Committee – T. Szoplik, Chair

T. Szoplik presented his report for the 2010 Galileo Galileo Award. There were 4 nominations this year.

Motion 7: (Moved by T. Szoplik, Seconded by I.C. Khoo/D. Moore, approved unanimously).

The Galileo Galilei Award Committee proposes to grant the Galileo Galilei Prize in 2010 to Mohammad Taghi Tavassoly of Iran.

10d. IUPAP Young Scientist Prize in Optics – A. Friberg, Secretary

A Friberg presented his report on the nominees for the 2010 IUPAP Young Scientist Prize in Optics. There were 8 nominees this year. The winner is Dr. Shuang Zhang from Birmingham for his "outstanding contributions in metamaterials and plasmonics, particularly the double-fishnet structure and pioneering achievements towards optical and three dimensional negative-index metamaterials." This citation, however, is tentative based on the nomination documents and will be consulted with the nominator. A. Friberg will forward the final citation once it is determined.

Motion 8: (Moved by A. Friberg, Seconded by D. Strickland, approved unanimously).

Dr. Shuang Zhang announced as the winning nomination for the 2010 IUPAP Young Scientist Prize in Optics for (possibly to be changed) his "outstanding contributions in metamaterials and plasmonics, particularly the double-fishnet structure and pioneering achievements towards optical and three dimensional negative-index metamaterials." Note: the citation will be finalized once A. Friberg sends the definitive wording.

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11. ICO Participation in Meetings and Schools

11a. Meetings Sponsored or to be sponsored during the period Oct. 2008 – Sept. 2011

G. von Bally reported on the meetings budget in the time frame beginning October 2008 and ending September 2011 (attachment 4). All of the money allotted will have been spent by the end of the legislative period with a projected deficit of only $500.00.

11b. Preparation of ETOP 2011

Z. Ben Lakhdar gave the report on the progress of ETOP 2011. ETOP 2011 will be held in Tunisia. She is trying to get people from many different countries to attend. The conference program has not yet been determined, but it will be in education and technological education in optics and photonics. The program will also include training in optics and photonics and an introduction to physics or science.

There are already several confirmed invited speakers and one confirmed plenary speaker. Venue, travel accommodations, and visa information, etc. is all on the conference website.

Regarding packages being organized for students (like residences, etc.) they will not pay fees for ETOP. African people will also not be required to pay fees for ETOP. French speakers will come to ALOP beforehand.

11c. Preparation of ICO 22- F. Mendoza

The venue is ready. The webpage is ready. The hotel of the conference will be announced soon. There will be grants for African participants. When and where will the next ICO Bureau Meeting be held in Puebla? We need to have 2 Bureau Meetings at ICO 22 because of the new members that will be elected. We will have the regular ICO Bureau Meeting and an additional joint meeting of the old and new Bureau members.

12. Proposals for hosting ICO 23 in 2014

Proposals for hosting the ICO 23 in 2014 were given by 4 competing countries: Canada, Denmark, Japan, and Spain.

12a. Canada -- Tigran Galstian

Canada was unable to send a representative to present the proposal. However, Dr. Tigran Galstian sent an electronic presentation. The host would be COPL – Centre d'Optique, Photonique et Laser. The conference would take place in Quebec City at the Quebec City Convention Center from August 4-7, 2014. There was no consolidated budget prepared. It is estimated that it would cost CA$13,830 for rental of the premises. Catering would cost $40/day/person. One plus is that hotels are within 15 minutes walking distance to the conference venue and hotel blocks are available. He estimated that 600 people would attend.

12b. Denmark – Steen Gruner Hanson

Dr. Steen Gruner Hanson presented his proposal to hold ICO 23 in Copenhagen, Denmark sponsored by the Technical University of Denmark (DTU) FOTONIK and the Danish Optical Society. The event would be held from July 7 – July 11, 2014. July was chosen due to decreased pricing. There are support letters from the Lord Mayor of Copenhagen, and Wonderful Copenhagen (WOCO), Scandinavian Airlines/STAR alliance, and the BELLA Center. If it turns out to be a professionally organized conference then WOCO will come up with$45,000. But if an amateur organizes the event, then WOCO will not put up money.

The Bella Center is where the event will be held. S.G. Hanson negotiated a price and thus, there is an agreement with the Bella Center. It holds 1,000 people. The number of participants is estimated at 800 people. There is an intention for an industrial exhibition. There are 3 large rooms which can be combined if necessary. The Center offers many amenities and technological needs.

There are many hotel accommodations and hotels in Copenhagen starting from 66 Euros and 20 Euros per night respectively. Everything needed is within walking distance. Technical visits will be available to the Danish Technical University and the Lund Laser Centre in Sweden.

There is funding available for students and participants from developing countries. Thus far, there has not been a request for ICO funds and it is undetermined whether or not there will be. Most of the money is expected to be generated from the participants. In an emergency, money would come from external funds.

12c. Japan – Yasuhiko Arakawa

Dr. Yasuhiko Arakawa presented his proposal to hold ICO 23 in Tokyo, Japan organized by the Science Council of Japan. Japan is one of the leading countries in optics. There was a previous ICO General Assembly in Japan only once before. This was ICO 13 and it was held in Sapporo in 1984. If ICO 23 is held in Japan it is tentatively scheduled for September 8–10, 2014 at the University of Tokyo's main campus in the Yasuda Auditorium. These specific dates were chosen because it is a holiday at this time and academic classes will not be in session.

The topic title of the conference would be "Optics for the Green Innovation." It could have many poster and plenary sessions. All topics of optics will be included.

General Comments There is only 1 female speaker currently scheduled. There is an IUPAP rule that 30% of speakers must be female, therefore Dr. Arakawa was advised that he will need to include more female representation.

The main co-sponsoring organizations of this event are the Japan Society of Applied Physics, the Physical Society of Japan, the Institute for Electronics, Information and Communication Engineers, the Optical Society of America, and the IEEE Photonics Society. Dr. Arakawa would be the head conference organizer, but responsibility lies within the Japan Territorial Committee.

The estimated budget is 49,500,000 yen. In the current proposed budget there is no student support. Japan is asking for more money from the ICO than usual for student support and this is a concern. The funds will come mostly through conference fees and support from the Science Council of Japan. The number of participants is very important and estimated at 850.

There will be access to many hotels in various price ranges, but in general hotels are cheap. Conference participants can take the metro if they do not prefer the 20 minute walk.

12d. Spain – Humberto Michinel

Dr. Humberto Michinel presented his proposal to hold ICO 23 in Santiago de Compostela, Spain from August 25-29, 2014. It will be organized by the 3 universities of Galicia: University of Vigo (Coordinator), University of Santiago de Compostela, and University of A Coruña. It will be held at the Palacio de congresos y exposiciones de Galicia.

Dr. Michenel feels that it is time for Europe to organize a General Assembly of the ICO. Spain is an ideal location because the 3 sponsoring universities joined to collaborate in a research and educational project: An MsC course in photonics and laser technologies within the framework of the European Space for Higher Education. This project has brought together important optics research groups together in academia and industry. There is a necessity to make ties between academia and industry. The future of our students relies on being involved with both academia and industry. Additionally, Spain is a touristic place with many things to do.

The location of Santiago de Compostela in particular was chosen because it was successful in hosting the general meeting of the Spanish Optical Society in September 2009. There was a new record of attendance for the previous meeting -- 300 participants. Additionally, 8 million people visited Santiago de Compostela in 2010. It has the atmosphere of a small town. There are modern places to host exhibitions/conferences. We can host more than 2,000 people. There would be a satellite meeting on a hot topic, i.e. energy. There would be social activities every day after the last session's end.

The total cost of the conference is estimated to be 690,000 Euros. Calculations are based on the assumption of 1,500 participants. It is possible to rent partial facilities if necessary. It will cost 40,000 Euros to bring in the invited speakers. If there is less money than what is needed, then they will be more creative to come up with the funds.

Hotels range from 50 Euros average, to 100 Euros high, to 250 Euros luxury. 200 grants would be given to participants in developing countries. Participants given grants would not pay for food, hotel, and part of their travel, etc.

There will be support from the Spanish Government and the local government. There is no support documented from IUPAP even though it is an IUPAP endorsed event. It was questioned that there should be support as a result of this fact. Requested support from the ICO is whatever the ICO feels they can contribute.

In addition to conference fees, the following funds will be given: 12,000 Euros from the Spanish Government, 6000 Euros from local authorities, and 3000 Euros from universities. There will also be services granted that can be used for free in lieu of money. Some organizations simply want advertising or their stamp affiliated with the event. There will not be an agency organizing the conference there will be a team of volunteers.

It was suggested that a request be made to the selected representative to go to Puebla and give a presentation to the General Assembly.

There was a consensus about holding ICO 2014 in Europe. There were objections to the budget presented by Denmark and Spain. The Bureau decided to ask for revisions of the proposals.

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Motion 9: Moved by H.P. Stahl, Seconded M. L. Calvo; Approved

Within 1 month, Spain and Denmark should revise their proposals and budgets based on the Bureau's guidance, and then the Bureau should take an electronic vote

Meeting adjourned 7:00 PM.

First version by the ICO Secretariat, February 2011
Reviewed by Angela M. Guzmán, June 2011
To be approved by the ICO Bureau in August 2011

LIST OF MOTIONS:

Motion 1: (Moved by M.L. Calvo, seconded by G. von Bally, approved unanimously).

The ICO Bureau approves the minutes of the previous Bureau Meeting held in Delphi, Greece in 2009

Motion 2: (Moved by H.P. Stahl, seconded by D. Moore/M. Gu, approved unanimously).

Prepare a new article 4A to define how ICO shares are assigned; the frequency of when they are calculated e.g. every 3 years or 6 years. Territorial Members may request to increase or decrease their shares per the allocation. Note: The text has to be approved by the ICO General Assembly and by the IUPAP

Motion 3: (Moved by J. Harrington, seconded by I.C. Khoo/ D. Moore/M. Gu, approved unanimously).

Change the mailing address of the ICO Headquarters to the new official address of L'Institut d'Optique, in Palaiseau, France from the old address (L'Institut d'Optique)

Motion 4: (Moved by D. Moore, seconded by F. Mendoza, approved)

At Puebla a presentation on the dues in arrears will be made by the Treasurer so that the baseline for accounts receivable can be established.

Motion 5; (Moved by H.P. Stahl, seconded by I.C. Khoo, approved)

Territorial Committees which are in arrears on their dues for more than 5 years will have their membership status demoted to Associate status. This means no shares, no votes, no officer on the Bureau, and no ability to ask for financial support.

Motion 6: (Moved by M. Gu, seconded by F. Mendoza, approved unanimously).

The ICO Proze Committee proposes to award the 2010 ICO Prize to Reinhard Kienberger for his "breakthrough work in attosecond science and its applications in metrology and spectroscopy."

Motion 7: (Moved by T. Szoplik, Seconded by I.C. Khoo/D. Moore, approved unanimously).

The Galileo Galilei Award Committee proposes to grant the Galileo Galilei Prize in 2010 to Mohammad Taghi Tavassoly of Iran.

Motion 8: (Moved by A. Friberg, Seconded by D. Strickland, approved unanimously).

Dr. Shuang Zhang announced as the winning nomination for the 2010 IUPAP Young Scientist Prize in Optics for (possibly to be changed) his "outstanding contributions in metamaterials and plasmonics, particularly the double-fishnet structure and pioneering achievements towards optical and three dimensional negative-index metamaterials." Note: the citation will be finalized once A. Friberg sends the definitive wording.

Motion 9: Moved by H.P. Stahl, Seconded by M.L. Calvo; Approved:

Within 1 month, Spain and Denmark should revise their proposals and budgets based on the Bureau's guidance, and then the Bureau should take an electronic vote.

LIST OF ACTIONS:

1. ICO SECRETARY: Send a reminder to Bureau members to contact the Territorial Committees they offered to serve as a direct contact. Send the list to the Bureau members.

2. BUREAU MEMBERS: Remind all Territorial Committees where we do have addresses on file that they have to cover the whole optical community in their respective country.

3. TREASURER : Send letters to Territorial Committees in arrears on their dues for more than 5 years declaring that their membership status will be demoted to Associate status, which means that their rights (votes, officers in the Bureau, ability to ask for financial support for their activities) will be lost if their dues are not paid. 4. TREASURER & SECRETARY: prepare a new article 4 to define how ICO shares are assigned; the frequency of when they are

calculated e.g. every 3 years or 6 years. Territorial Members may request to increase or decrease their shares per the allocation.

5. TREASURER: Make a presentation at Puebla on the dues in arrears so that the baseline for accounts receivable can be established.

6. ASSOCIATE SECRETARY: Ask Denmark and Spain to send a revised version of their proposals to hold ICO 23.

7. SECRETARY: Distribute the revised version of the proposals from Spain and Portugal and call for an electronic vote to decide on the ICO 23 site.

Members of the ICO Bureau 2008-2011. Pictured from left to right: F Mendoza Santoyo, I C Khoo, A Wagué, D T Moore, Z Ben Lakhdar, M Troshinsky (administrative secretary), R Ramponi, A M Guzmán, A T Friberg, M L Calvo, D T Strickland, G von Bally, T Szoplik, Y Arakawa, H P Stahl, M Gu, J A Harrington and Z Bingkun.

ATTACHMENT 1: PROPOSAL FOR NEW ALLOCATION OF UNITS

	Country	H index	Current units	Current votes	Units normalized to US	Units normalized to Germany	Units normalized to Japan	Proposal	Votes
1	United States	185	18	6	18	21	26	18	6
2	Germany	131	15	5	15	15	19	15	5
3	United Kingdom	111	12	5	13	13	16	15	5
4	Japan	105	15	5	12	12	15	15	5
5	France	98	15	5	11	11	14	15	5
6	Italy	86	12	5	10	10	12	12	5
7	Netherlands	82	4	3	9	9	12	9	4
8	Canada	80	8	4	9	9	11	9	4
9	Switzerland	77	4	3	9	9	11	9	4
10	Denmark	76	3	2	9	9	11	9	4
11	Spain	75	4	3	9	9	11	9	4
12	China	74	8	4	8	8	11	8	4
13	Sweden	71	8	4	8	8	10	8	4
14	Australia	69	6	3	8	8	10	8	4
15	Israel	68	2	2	8	8	10	8	4
16	Russian Federation	68	18	6	8	8	10	18	6
17	Austria	60							
18	South Korea	60	3	2	7	7	9	7	4
19	Poland	59	4	3	7	7	8	7	4
20	Belgium	57	4	3	7	7	8	7	4
21	India	53	4	3	6	6	8	6	3
22	Finland	48	3	2	5	5	7	5	3
23	Hong Kong	47							
24	Hungary	47	3	2	5	5	7	5	3
25	Czech Republic	46	2	2	5	5	7	5	3
26	Mexico	46	2	2	5	5	7	5	3

27	Norway	46	3	2	5	5	7	5	3
28	Taiwan	46	3	2	5	5	7	5	3
29	Greece	42	1	1	5	5	6	5	3
30	Brazil	40	4	3	5	5	6	5	3
31	New Zealand	38	1	1	4	4	5	4	3
32	Singapore	38	1	1	4	4	5	4	3
33	Ukraine	37	1	1	4	4	5	4	3
34	Ireland	36	1	1	4	4	5	4	3
35	Portugal	35							
36	Bulgaria	34							
37	Slovakia	33	1	1	4	4	5	4	3
38	Argentina	32	2	2	4	4	5	4	3
39	Turkey	32	1	1	4	4	5	4	3
40	Belarus	31	2	2	4	4	4	4	3
41	Romania	30	1	1	3	3	4	3	2
42	Slovenia	25							
43	Lithuania	23	1	1	3	3	3	3	2
44	Chile	22							
45	Estonia	20	1	1	2	2	3	2	2
49	Thailand	18							
50	Venezuela	18	1	1	2	2	3	2	2
52	Latvia	17	1	1	2	2	2	2	2
53	Morocco	17	0	0	2	2	2	2	2
56	Colombia	14	1	1	2	2	2	2	2
57	Iran	14	1	1	2	2	2	2	2
59	Cuba	13	1	1	1	1	2	1	1
61	Tunisia	13	1	1	1	1	2	1	1
63	Moldova	12	1	1	1	1	2	1	1
70	Indonesia	10	1	1	1	1	1	1	1
91	Peru	4							

95	Ecuador	3	0	0		0		0	0	0	0	0	0
102	Ghana	2	1	1		0		0	0	0	1	1	1
109	Sudan	2	1	1		0		0	0	0	1	1	1
	ICO Annual income		$36,925	115		$57,754		$58,311	$72,750	$53,900	158		

ATTACHMENT 2

FISCAL SPONSORSHIP GRANT AGREEMENT BETWEEN

THE OSA FOUNDATION AND

THE INTERNATIONAL COMMISSION FOR OPTICS

On _____, 2010, the OSA Foundation (Grantor) decided that financial support of the project described in the grant proposal application accompanying this Agreement will further Grantor's tax-exempt purposes. Therefore, Grantor has created a restricted fund designated for such project, and has decided to grant all amounts that it may deposit to that fund, less any administrative charge as set forth below, to the International Commission for Optics (Grantee), subject to the following terms and conditions:

WHEREAS,

A. Grantee is an exempt organization under Section 501(c)(4) of the Internal Revenue Code, and may apply for exemption from federal income tax under Section 501(c)(3) of the Internal Revenue Code at some point in the future

B. The purpose of Grantee is the following: to contribute, on an international basis, to the progress and diffusion of knowledge in the field of optics.

C. Grantor is exempt under Section 501(c)(3) of the Internal Revenue Code and is not a private foundation under Section 509(a)(1) of the Internal Revenue Code. Grantor would like to support certain activities of Grantee and is willing to act as a fiscal sponsor for Grantee. Grantor will accept contributions for the benefit of ICO by those contributors who wish to support Grantee prior to Grantee's obtaining federal tax exempt status (the "Fiscal Sponsorship").

D. Grantor anticipates terminating the Fiscal Sponsorship should the Grantor receive an advance ruling that it is exempt under Section 501(c)(3) of the Internal Revenue Code.

E. Grantor and Grantee have a shared mission, and Grantor has determined that the purposes and activities of ICO are charitable under Internal Revenue Code Section 501(c)(3). The success of ICO will benefit the mission of the Fiscal Sponsor.

NOW, THEREFORE, in consideration of the foregoing recitals and the promises contained herein, and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties, intending to be legally bound, agree as follows:

1. Term. This Agreement shall be effective starting [INSERT DATE] and shall remain in force until Grantee receives its designation from the Internal Revenue Service as a 501(c)(3) tax-exempt organization, or it is terminated in accordance with the terms of this Agreement, whichever is sooner.

2. Grantee shall provide Grantor with its governing documents, a completed and filed IRS Form SS-4 or other documentation satisfactory to Grantor, showing Grantee's separate existence as an organization.

3. Use of Funds. Grantee shall use the grant solely for the project described in the accompanying grant proposal application, and Grantee shall repay to Grantor any portion of the

amount granted which is not used for that project. Any changes in the purposes for which grant funds are spent must be approved in writing by Grantor before implementation. Grantor retains the right, if Grantee breaches this Agreement, or if Grantee's conduct of the project jeopardizes Grantor's legal or tax status, to withhold, withdraw, or demand immediate return of grant funds, and to spend such funds so as to accomplish the purposes of the project as nearly as possible within Grantor's sole judgment. Any tangible or intangible property, including copyrights, obtained or created by Grantee as part of this project shall remain the property of Grantee.

4. Fundraising. Grantee may solicit gifts, contributions and grants to Grantor, earmarked for Grantor's restricted fund for this project. Grantee's choice of funding sources to be approached and the text of Grantee's fundraising materials are subject to Grantor's prior written approval. All grant agreements, pledges, or other commitments with funding sources to support this project via Grantor's restricted fund shall be executed by Grantor.

5. Nothing in this Agreement shall constitute the naming of Grantee as an agent or legal representative of Grantor for any purpose whatsoever except as specifically and to the extent set forth herein. This Agreement shall not be deemed to create any relationship of agency, partnership, or joint venture between the parties hereto, and Grantee shall make no such representation to anyone.

6. Reporting Requirement. Grantee shall submit a full and complete report to Grantor sixty (60) days after the completion of the grant program. Periodic program updates may be requested for programs lasting more than three months. The report shall describe the charitable programs conducted by the Grantee with the aid of this grant and the expenditures made with grant funds, and shall report on the Grantee's compliance with the terms of this grant.

7. Termination. Either party may terminate this Agreement by giving sixty (60) days' written notice to the other party.

8. This grant is not to be used in any attempt to influence legislation within the meaning of Internal Revenue Code (IRC) Section 501(c)(3).

9. Grantee shall not use any portion of the funds granted herein to participate or intervene in any political campaign on behalf of or in opposition to any candidate for public office, to induce or encourage violations of law or public policy, to cause any private inurement or improper private benefit to occur, nor to take any other action inconsistent with IRC Section 501(c)(3).

10. Grantee shall notify Grantor immediately of any change in:

(a) Grantee's legal or tax status, and

(b) Grantee's executive or key staff responsible for achieving the grant purposes.

11. Grantee hereby irrevocably and unconditionally agrees, to the fullest extent permitted by law, to defend, indemnify and hold harmless Grantor, its officers, directors, trustees, employees and agents, from and against any and all claims, liabilities, losses and expenses (including reasonable attorneys' fees) directly, indirectly, wholly or partially arising from or in connection with any act or omission of Grantee, its employees or agents, in applying for or accepting the grant, in expending or applying the funds furnished pursuant to the grant or in carrying out the program or project to be funded or financed by the grant, except to the extent that such claims, liabilities, losses or expenses arise from or in connection with any act or

omission of Grantor, its officers, directors, trustees, employees or agents.

12. General.

a. Notices. All notices, demands, amendments, waivers, consents, approvals, and other communications required or permitted under this Agreement must be in writing and expressly reference this Agreement.

b. Amendments; Waivers. All parties must approve any amendment to this Agreement, however, any waiver of any right or remedy requires only the consent of the party waiving it. Every amendment or waiver must be in writing and designated as an amendment or waiver, as appropriate. No failure by any party to insist on the strict performance of any provision of this Agreement, or to exercise any right or remedy, will be deemed a waiver of such performance, right or remedy, or of any other provision of this Agreement.

c. Severability. If any provision of this Agreement, or the application thereof, becomes or is declared by a court of competent jurisdiction to be illegal, void or unenforceable, the remainder of this Agreement will continue in full force and effect and the application of such provision to other persons or circumstances will be interpreted so as reasonably to effect the intent of the parties hereto. The parties further agree to replace such void or unenforceable provision of this Agreement with a valid and enforceable provision that will achieve, to the extent possible, the economic, business and other purposes of such void or unenforceable provision.

d. Entire Agreement. This Agreement shall supersede any prior oral or written understandings or communications between the parties and constitutes the entire agreement of the parties with respect to the subject matter hereof. This Agreement may not be amended or modified, except in a writing signed by both parties hereto.

e. Counterparts. This Agreement may be executed in one or more counterparts, all of which are considered one and the same agreement and will become effective when one or more counterparts have been signed by each of the parties and delivered to the other parties, it being understood that all parties need not sign the same counterpart. A facsimile signature page will be deemed an original.

f. Governing Law. This Agreement shall be governed by and construed in accordance with the laws of the State of New York applicable to agreements made and to be performed entirely within such State.

IN WITNESS WHEREOF, the parties have executed this Grant Agreement effective on the _____ day of _____, 200__.

OSA FOUNDATION	INTERNATIONAL COMMISSION FOR OPTICS
By:	By:
Print Name:	Print Name:
Title:	Title:

ATTACHMENT 3: TREASUER'S REPORT

ICO Treasurer's Report, 2009-2010

The ICO has been able to retain an excellent cash balance of $125,384 in our treasury. This amount is held in US dollars ($121,970) at the US Bank of America and in Euros (2,438 €) in the Caisse D'Epargne in Paris. The primary source of income that the ICO receives is derived from membership dues contributed by the Territorial Committees. The money that the ICO expends is used mostly to support conferences, ICO prizes, and travelling lecture awards.

A persistent problem this year is the collection of dues and dues in arrears. This is a problem which has existed for some time and it is an issue that needs to be addressed. So far in 2010, only 20 out of 53 territories or 38% have paid their dues as of October 1st. These 20 territories account for 56% of the 2010 dues collected. Worse yet is the money owed us prior to 2010. While the financial records for the years prior to 2006 are sometimes sketchy, the most reliable data show that we are owed at least $44,900 in back dues. The non-payment of dues goes back, in some cases, well beyond 5 years (see the Appendix). For these few cases the ICO needs to decide whether the territory should be dropped from ICO membership or should continue their membership assuming that some arrangement is made to pay their past dues.

The biggest expense of the ICO outside of the money given to support conferences, travel, and prizes is for publication and mailing of the newsletter and green books. So far in 2010 the publisher, IOP Press in the UK, has charged the ICO $776 for printing. The cost for mailing the newsletters by BTB Mailflight was $4,578. One way to reduce printing and mailing costs would be to consider sending CDs of the green book instead of a printed copy and to transition to an electronic version of the newsletter.

As most of you know, we have been in contact with the Optical Society of America Foundation (OSAF) regarding the acceptance of monetary gifts by US donors for the use of the ICO. This has been ongoing for a number of years and we have recently agreed to have any gift monies pass through the OSAF to us. The reason for this is that we are a 501(c)4 organization. This means that monies donated by US citizens to the ICO do not exempt the donor from paying US taxes on their gift. In contrast the OSAF is a 501(c)3 organization (as is the OSA itself) and thus the OSAF can accept donations without the donor paying US tax on their donation. The easy workaround for the ICO is to have the money donated to the OSAF and then given to the ICO for our use. Then the US citizen gets a tax-free donation and the ICO receives the money. We have received the MOU from the OSAF and Maria has signed the agreement. We now await the OSAF board's approval which we will hopefully occur at the OSAF board meeting to be held on October 27, 2010. I should mention that this is an approach which in the long term may not be the best solution. That is, there is no fundamental reason that we cannot convert the ICO from its current status of a 501(c)4 to a 501(c)3 organization. Such a conversion requires some paperwork to be filed with the Internal Revenue Service plus an application fee of $850.

Finally, a somewhat longer term issue is a re-examination of the units that we assess each territory as a means of determining their dues. The current dues rate is based on $175/unit. The number of units for any territory varies from 1 to 18 units. The units that each territory is assigned are based on information from the World Bank on the economic status of the various countries. The ICO established the numbers of units many years ago but we feel that it is now

time to re-evaluate the units assigned to each territory in light of economic changes since the units were established. We want to be certain that the units are assigned equably.

Balance Sheet - 1 October 2010

Assets			
Current assets			
Checking/Savings			
	Bank of America - checking	$14,905	
	Bank of America - money market	$107,065	
	French account-converted 1 € = $1.40	$3,414	
Total checking/money market			$125,384
Accounts receivable-dues			
	Dues 2010-received	$21,675	
	Dues 2010-still owed	$17,125	
	Prior year dues in arrears	$44,900	
Total accounts receivable			$83,700
Total assets			$209,084
Liabilities and equity			
Conference support			
	OWLS 11-Canada	$1,500	
	RIAO-OPTILAS	$2,000	
	ICO-22	$7,500	
	PHOTONICS 2010-INDIA	$1,500	
	EOS-Paris, 2010	$2,000	
	SPIE-Photonics Europe	$1,500	
	LAM 9-Senegal	$1,500	
	V Workshop Lidar, Buenos Aires	$1,000	
	ETOP	$2,000	
	ICTP-Winter College Trieste	$5,000	
	Total conference support		$25,500
ICO Prizes			
	ICO Prize + travel – 2009	$3,000	
	Galileo Galilei - 2009	$1,000	
Secretariat-A. Guzman		$5,650	
Traveling lecture award		$1,000	
Newsletter	IOP Publishing	$776	
Mailing	BTB Mailflight	$4,578	
ICSU		$750	
	Total miscellaneous liabilities		$42,254
Total liability			$67,754
Equity			
Retained earnings			$141,330
Total equity			$141,330
Total liabilities and equity			$209,084

APPENDIX – DUES OWED BY TERRITORIAL COMMITTEES

TERRITORIAL COMMITTEE	Years in Arrears 2009 and before	Dollars Owed Prior to 2010
ARGENTINA	1	350
AUSTRALIA	None	
BELGIUM	10	6,100
BELORUSSIA	9	2,750
BRAZIL	10	6,100
CANADA	None	
CHINESE OPTICAL SOCIETY	5	6,000
COLOMBIA	1	150
CUBA	4	625
CZECH REPUBLIC	None	
DENMARK	None	
ECUADOR	Associate member	
ESTONIA	None	
FINLAND	None	
FRANCE		
GERMANY	None	
GHANA/WEST AFRICA	4	625
GREECE	None	
HUNGARY	3	1,425
INDIA	None	
INDONESIA	3	475
IRELAND	None	
ISLAMIC REPUBLIC OF IRAN	4	625
ISRAEL	1	350
ITALY	1	1,800
JAPAN	None	
KOREA	5	2,325
LATVIA	None	
LITHUANIA	6	925
MEXICO	None	
MOLDOVA	4	625
MOROCCO	Associate member	
NETHERLANDS	3	1,900

NEW ZEALAND	**None**	
NORWAY	**3**	**1,425**
OPTICAL ENGINNERING SOC. TAIPEI	**3**	**1,425**
POLAND	**None**	
ROMANIA	**None**	
RUSSIA	**1**	**3,150**
SINGAPORE	**5**	**775**
SLOVAK REPUBLIC	**5**	**775**
SPAIN	**1**	**600**
SWEDEN	**None**	
SWITZERLAND	**None**	
TUNISIA	**3**	**475**
TURKEY	**4**	**625**
UKRAINE	**5**	**750**
UNITED KINGDOM	**None**	
USA	**None**	
USAC/ICO (same as USA with respect to dues)		
VENEZUELA	**4**	**625**
AFRICAN LASER ATOMIC AND MOLECULAR PHYSICS	**2**	**325**
EOS	**1**	**150**
IEEE/LEOS	**2**	**650**
INT.SOC.ON OPTICS WITHIN LIFE SCIENCES	**None**	
OSA	**None**	
SPIE	**None**	
	Back dues owed ICO	**$44,900**

ATTACHMENT 4:

Legislative Periode Oct 2008 - 30. Sept 2011

1. Oct 2008 - 30. Sept 2009 (Period 1)	Date	requested by applicants	end./cosp. Grant/risk decision by ICO (proposal marked in blue)	representative: decision by ICO
Photonics Prague 2008, *Prague, Czech Republic*	27-29 Aug 2008	end. no money requ	**end. US$ 0**	Gert von Bally
10th International Conference on New Developments and Applications in Optical Radiometry (Newrad 2008); *Daejeon, Korea*	13-16 Oct 2008	end. no money requ	**end. US$ 0**	Yoon Kim
International Topical Meeting on Information Photonics 2008; *Awaji, Hyogo, Japan*	16-20. Nov 2008	end. no money requ	**end. US$ 0**	Yasuhiko Arakawa
PHOTONICS 2008 9TH International Conference on Fiber Optics and Photonics, *New Delhi, India*	14-17 Dec 2008	cosp. US $ 5,000	**end. US$ 1,500**	Ari Friberg
VI International Workshop TECNOLASER 2009 and II Meeting Optics, Life and Heritage; *La Habana, Cuba*	13-16 Apr 2009	cosp. US $ 3,000	**end. US$ 2,000**	Gert von Bally Maria Calvo
4th Asian and Pacific Rim Symposium of Biophotonics (APBP 2009); *Jeju island, Korea*	27-29 May 2009	cosp. US$ 5,000	**end. US$ 1,000**	Min Gu
12th International Conference on Photorefractive Materials, Effects and Devices - Control of Light and Matter; *Bad Honnef, Germany*	11-14 Jun 2009	cosp. US. $	**cosp. US$ 1,000**	Cornelia Denz
Nanophotonics Down Under 2009: Devices and Applications; *Melbourne, Australia*	21-24 June 2009	end. US$ 1,000	**end. US$ 1,000**	Min Gu

1. Oct 2010 - 30. Sept 2011 (Period 3)

TCM 2010, *Crete, Greece*	17-21 Oct 2010	end. US $ 2,000	**end. US $ 1,000**	Gert von Bally
EOS Annual Meeting/ICO Topical Meeting *Paris, France*	26-29 Oct. 2010	cosp. US $ 3,000	**cosp. US$ 2,000**	Maria L. Calvo, Gert von Bally
2nd Mediterranean Photonics Conference, *Eilat Israel*	29 Nov - 2 Dec 2010	end. US $ 0	**end. US $ 0**	Joseph Shamir
Photonics 2010, International Conference on Fiber Optics and Photonics, *India*	11-15 Dec 2010	cosp. US $ 5,000	**end. US$ 1,500**	Maria Calvo
International Conference on Applications of Optics and Photonics, *Braga Portugal*	3-7 May 2011	end. US $ 0	**end. US$ 0**	Maria Calvo
Information Photonics, *Ottawa, Canada* (in preparation)	18-20 May 2011	cosp. US $ 2,000	**cosp. US$ 1,500**	Maria Calvo
Panamerican Advanced Studies Institute on Frontiers in Imaging Scence, *Bogota Colombia*	7-17 June 2011	cosp. US $ 1,920	**US $ 1,000**	Roman Castaneda
ETOP 2011, *Tunesia*	8-10 July 2011		**cosp. US$ 2,000**	
1st EOS Topical Meeting on Photonics for Sustainable Development - Focus on the Mediterranean (PSDM 2011), *Tunis Tunesia*	11-13 July 2011	cosp. US $ 1,300	***US $ 1,000***	
ICO-22, *Puebla Mexico*	15-19 Aug 2011		***cosp. US$ 7,000 (different budget)***	
Conference Correlation Optics 2011, *Chernivtsi, Ukraine*	12-16 Sept 2011	cosp. US $ 3,000	***US $ 1,000***	Serguey Odoulov
Newrad 2011, *Hawai, USA*	19-23 Sept 2011	end. Us $ 0	**US $ 0**	
			US $ 11,000	

Budget overview:	Distribution Plan	Current Expenditures
1. Oct. 2008 - 30. Sept. 2011 total: US $ 32,000		
Budget distribution plan:		
1. Oct 2008 - 30. Sept 2009:	US $ 11,000	US $ 11,500
1. Oct 2009 - 30. Sept 2010:	US $ 11,000	US $ 10,000
1. Oct 2010 - 30. Sept 2011:	US $ 10,000	US $ 11,000

- US $ 500

MINUTES OF THE ETOP LONG RANGE ADVISORY COMMITTEE MEETING

Technium OpTIC, St. Asaph, North Wales, UK, July 6, 2009

ETOP Long Range Advisory Committee Members: Barry Shoop (Chair, OSA), Emanuel Istrate (IEEE), John Love (ICO), Nick Massa (SPIE)
Appointed Society Staff Members: Kylee Coffman (OSA), Kathleen Robinson (SPIE)
Guests: Zohra Ben-Lakhdar, Dan Curticapean, Maria Yzuel

1.0 Welcome and Introductions

1.1 *Shoop* called the meeting to order at 12:00pm.
1.2 The Agenda was reviewed and approved by committee

2.0 Mission Statement of ETOP: Review

Robinson presented a brief overview of the current MOU between ICO, OSA, IEEE/LEOS, and SPIE, which expires at the end of 2009.

2.1 Audience of ETOP

Committee discussed methods to improve the meeting in future years. Highlighted suggestions included: 1) Incorporating a theme for session blocks 2) Insisting that Host Organizers utilize the Long Range Advisory and Programme Committees 3) Ensuring that the Secretariat receives minutes from the local meetings 4) Recruiting strong leaders and educators to present 5) Marketing more aggressively 6) Marketing the history of ETOP 6) Increasing two-way interaction between speaker and audience by including workshops and demonstrations of educational kits 7) Aggressively increasing visibility of poster sessions and exhibit space 8) Move towards peer review of papers and placing lower quality papers in poster session
What's preferred attendance?
We shoot for 100 papers. 200 attendees.
Shoop suggested we set clear metrics for determining meeting success.

2.2 ETOP Rotation Process

Committee discussed the increase in bids for potential Host Organizers. It was suggested that the numbers of quality papers submitted would increase as well as registered attendees if ETOP was collocated with another major conference. ETOP could potentially recruit "optic celebs" to present. This would allow both technical and educational papers to be submitted. Funding would remain the same with an increase in local sponsorship.

MOTION 2.2: The following motion was moved by *Love* seconded, and passed.

Motion 2.2: Moved to recommend that the Societies adjust the rotation schedule to allow ETOP conferences to be held annually starting in 2012. For cost effectiveness, "even" years will be collocated with a sponsoring organization's conference.

Action Item 1: *Robinson* and *Coffman* to take motion back to sponsoring organizations.

3.0 Bids from Host Organizers for ETOP 2011

3.1 Bid from Tunisian Organizer

Zohra Ben-Lakhdar presented her bid to the committee to host ETOP (Early July, 2011) in Tunis, Tunisia. The proposed location for the conference will be the Ramada Plaza Tunis (Ramada Hotel) in Gammarth, TN, considered a European vacation spot. It would be the first ETOP held in Africa. In the past it's been held 5 times in Europe, 5 times in North America, and once in Asia. They plan to ask the ICTP, Ministry of Education, Universities of Science of the country, National agency for promotion of research and innovation, Technolopole el Ghazala, Engineering school Sup'Com, Tunisian Society of Physics, Tunisian Society of Chemistry, and related organizations for help. The Organizers have tentatively planned to co-locate an ALOP workshop with ETOP to assist with funding travel for African participants. There will be three local hotels available to attendees: Hotel Karim, Hotel Ramada, and Hotel Mouradi. Special events include a welcome reception and visit to Carthage, a Roman and archaeological city more than 3,000 years old located 10 km from Remada. The native/local language is French, but papers will be presented in English. The registration cost will be very low compared to other ETOP meetings, about $50 USD. Conference Chair will be the President of the University.

3.2 Bid from Mexican Organizer

Maria Yzuel presented a bid to the committee to host ETOP 2011 in Guanajuato, Mexico. The City of Guanajuato has a world-class congress venue that is supported by a range of professional organizations and government departments, including the National Council for Science and Technology, the Government of the State of Guanajuato and the Government of the City of Guanajuato, who have committed $30,000 USD in support of ETOP 2011. There are many active OSA and SPIE student chapters in Mexico and a long list of potential volunteers for the organizing committees. The meeting would be held at the Camino Real Hotel. This hotel is located in San Francisco Javier, where metals were once mined and processed. Local attractions include the La Alhondiga de Granaditas, the Juarez Theatre, Union Garden, the Basilica of Our Lady of Guanajuato, Baratillo Square, Callejon del Beso and the University of Guanajuato. The airport is 20 minutes drive from the hotel. They would request a grant in the amount of $33,366.85 USD from sponsoring organizations.
Though it had been suggested the meeting would be co-located with the ICO 22nd Congress in Puebla, Mexico, the proposal is for ETOP to be held ~250 miles away in Guanajuato.

3.3 Bid from German Organizer

Dan Curticapean presented his bid to the committee to host ETOP 2011 in Offenburg, Germany during the second week of July at the University of Applied Sciences. The University has one of the most modern multimedia conference rooms with 400 seats. The Local Organizing Body would include the Faculty of Media and Information Technology. Many universities are nearby in Berlin, Munich, and Vienna. They would use viral marketing efforts and virtually deliver talks and conference highlights. Local excursions could include a trip to the Black Forest, Strasbourg, Baden-Baden, as well as Europa Park. An invitation to a Nobel awarded leader in the industry would be extended. A list of potential sponsors could include: City of Offenburg; City of Strasbourg; Metropolregion Sick AG, Thorlabs, Burda, airlines, Local Optical Companies, Europa Park, FHO, IAF, MI.

Committee discussed bids from potential Hosts.

MOTION 3.4: The following motion was moved by *Love*, seconded by *Shoop*, and passed.

Motion 3.4: Moved to vote on Host for ETOP 2011. The LRAC recommends Tunisia as Host Organizer to take back to sponsoring societies.

MOTION 3.5: The following motion was moved by *Shoop*, seconded, and passed.

Motion 3.5: Moved that the Long Range Advisory Committee Meeting adjourn at 2:35pm

MEMORANDUM OF UNDERSTANDING AMONG
ICO, OSA, IEEE PHOTONICS SOCIETY AND SPIE FOR
LONG RANGE GUIDANCE, SPONSORSHIP AND MANAGEMENT OF

EDUCATION & TRAINING IN OPTICS & PHOTONICS (ETOP) CONFERENCES

This document, effective 1 January, 2010 and continuing through 31 December, 2013 identifies the long-range sponsorship and management strategy for the Education and Training in Optics and Photonics ("ETOP") conference as agreed upon by The International Commission for Optics ("ICO"), The Optical Society of America ("OSA"), the IEEE Photonics Society ("IEEE"), and the International Society for Optics and Photonics ("SPIE") (ICO, OSA, IEEE, and SPIE are hereinafter collectively referred to as the "Permanent Sponsors"). The goal of this strategy is to create a structure that will increase participation and attendance in the conference and to ensure long-term quality, continuity and shared responsibility for financial strength. ETOP is a biennial conference, dedicated to optics and photonics education on an international, in-depth basis.

1. Organization and Structure

1.1 Long-Range Advisory Committee:

A Long-Range Advisory Committee ("LRAC") will be formed with representation as indicated below from the Permanent Sponsors, and potentially others as approved by the committee members. Each LRAC member will normally serve a three-year term which can be extended on the approval of the committee. One of the four permanent sponsor representatives will be elected Conference Chairperson by the LRAC every three years. The LRAC will meet periodically, and its role will be to plan and advise on upcoming ETOP conferences in terms of host organizer, location, sponsorship, conference Chairperson(s), program content and management opportunities. These meetings may take place electronically via email or via conference call. A non-voting member of the LRAC will serve as Secretariat and be responsible for maintaining general ETOP records, timelines and scheduling planning meetings. This role will alternate among SPIE, OSA and IEEE staff for each conference. Each approved sponsoring organization will appoint its respective representatives to the LRAC as follows:

- Appointed ICO bureau representative
- Appointed SPIE representative
- Appointed OSA representative

- Appointed IEEE representative
- One representative from each additional sponsoring organization if approved
- Appointed SPIE staff member (non-voting)
- Appointed OSA staff member (non-voting)
- Appointed IEEE staff member (non-voting)

Continuity of committee members is emphasized. Representatives must have the ability to participate in planning meetings.

1.2. Program Committee and Conference Chairperson(s)

The role of the Program Committee, working closely with the Chairperson, is to recommend conference topics and potential Program Committee members, solicit technical presentations for the conference (papers, workshops, panels, etc.) and to suggest session topics, key note speakers, invited speakers and panel members. The Chairperson will make every effort to ensure that the make-up of this committee contains a strong international participation. The Program Committee will consist of:

- Conference Chairperson (also serves as Program Committee Chairperson)
- Immediate past ETOP Chairperson
- Long Range Advisory Committee Members
- A member of each cosponsoring and cooperating organization upon their identification and request to participate
- Appointed SPIE staff member (non-voting)
- Appointed OSA staff member (non-voting)
- Appointed IEEE staff member (non-voting)

The Conference Chairperson has the responsibility of appointing session chairs, providing titles for topical session blocks, designating the appropriate session for each paper and for the abstract and paper review process.

1. Management, Financial Goals and Sponsorship

2.1. Management

The Permanent Sponsors shall select an organization to act as manager and host of each ETOP conference. This organization shall be known as the "Host Organizer" of its particular conference. The process for selecting a Host Organizer shall be as follows: the current ETOP Secretariat and the Long Range Advisory Committee shall solicit formal applications from organizations interested in acting as Host Organizer for each ETOP conference; the Permanent Sponsors shall then review these applications, and select by majority vote the Venue and Host Organizer for each ETOP conference. The principle of global rotation will be an important factor in recommending and selecting a Host Organizer. At various times the Long Range Advisory Committee may request SPIE, IEEE or OSA to serve as the Host Organizer of an ETOP conference at an appropriate meeting. Any approved Host Organizer, including SPIE, IEEE or OSA, should they accept the role, must also accept the responsibilities regarding management of the conference including, but not limited to:

- Actively managing or delegating management responsibility to another appropriate organization for finances, facilities and logistics. Ensuring quality and continuity of the management function and its consistency with ETOP objectives.
- Scheduling Program Committee meetings, recording minutes and maintaining all pertinent records of such meetings, in coordination with the Secretariat.
- Developing the conference budget for approval by the ETOP Long Range Advisory Committee that takes into consideration the IUPAP (International Union of Pure & Applied Physics) registration-fee guidelines. The Conference Chairperson(s) and Host Organizer must agree on the conference budget at least one year in advance of the meeting date.
- Working with the Conference Chair(s) and Program Committee to develop the technical program.
- Communicating with authors, Chairperson(s) and committee members regarding their particular roles and responsibilities related to the conference.
- Collecting abstracts, manuscripts and electronic presentations.
- Publishing the proceedings of the conference, as defined in Section III.
- Promoting the conference.
- Securing facilities, and providing onsite logistics management.
- Staffing the conference on site.
- Processing registrations for the conference.
- Pursuing sponsorship from any and all appropriate sources.
- All accounting and financial reporting related to the conference.
- Assuring funding of all expenses and commitments related to the conference.
- Distributing ETOP records including financial results and attendee information to the Long Range Advisory Committee.

2.2. Financial Goals

The financial goal of each ETOP conference is to operate at break-even. Any surplus or loss resulting from an ETOP conference will accrue to the Host Organizer.

2.3. Sponsorship, Co-sponsorship and Cooperating Organizations

SPIE, OSA, IEEE and ICO are permanent sponsors of the ETOP conference. The Long Range Advisory Committee will make decisions regarding the addition of permanent sponsors. Other permanent sponsors will be invited or may be proposed by the Long Range Advisory Committee as appropriate and must be approved by all permanent sponsors.

As used herein, the term “permanent sponsor" indicates a willingness to provide financial support to the meeting. It is agreed that, as permanent sponsors of the ETOP conference, SPIE, OSA and IEEE will each provide grants of $6,000 USD per ETOP conference during the term of this agreement. ICO will likewise provide a grant of $2,400 USD per ETOP conference. In addition, each permanent sponsor agrees to promote the ETOP conference to their respective constituencies. Permanent sponsors may offer additional support to the Host Organization in the form of a profit/loss sharing agreement.
Co-sponsors and cooperating organizations will be invited as identified by the Conference Chair or Host Organizer. Co-sponsorship may or may not include direct financial support and/or active participation in the conference through lending of staff and/or volunteers for significant

program or logistical tasks, and active promotional assistance such as loaned mailing lists and feature articles in an organization's publications. "Cooperating Organization" status implies active promotional assistance only.

2. Papers and Proceedings

It is generally assumed that a proceedings volume of full-manuscript papers (6+ pages) will be published and/or electronically archived for each ETOP conference and distributed to all conference attendees and permanent sponsors.

3.1. Terms

- The Host Organizer will collect abstracts, manuscripts and electronic presentations and obtain necessary permissions for publication.
- Host Organizer must ensure that the author permissions are transferable, and apply to electronic publication.
- The Host Organizer will provide an electronic copy of all abstracts, manuscripts and electronic presentations to the permanent sponsors
- The Host Organizer will supply copies of permissions for individual papers to the Cosponsors upon request.
- The Host Organizer will publish and distribute conference proceedings. Electronic publication format is acceptable and preferred.
- It is understood that a copy of the proceedings will be included in the conference registration fee and that all attendees will receive a conference proceedings.
- All Permanent Sponsors will be listed as co-publishers of the ETOP proceedings.
- The copyright will be jointly owned by the Permanent Sponsors of the ETOP conference. The joint copyright owners agree to grant to each other a non-revocable world-wide license to use the copyrighted materials for its business or altruistic purposes provided that such use provides due and proper recognition of the joint publishing and copyright status.

Publications will bear the wording, "© 20XX ICO, IEEE, OSA and SPIE."

3. Non-Competition

ICO, SPIE, IEEE, OSA and all sponsoring organizations agree not to sponsor a directly competing activity with the ETOP conference series. Directly competing activity is defined as a stand-alone conference promoted as an international event held on the same or similar topics, within six (6) months of any ETOP conference.

4. Termination

Anyone of the Permanent Sponsors may terminate their participation in this agreement by submitting written notification to all Permanent Sponsors of their intention to terminate. This notification must be received by all Permanent Sponsors not less than twenty four (24) months prior to the next scheduled ETOP conference or the terminating party will be required to pay the minimum established contribution amount to the Host Organizer.

5. Prior Agreements

The terms of this Agreement shall replace the terms of any and all prior ETOP agreements between the permanent sponsors.

[END OF AGREEMENT; SIGNATURES FOLLOW]

Approved by ICO, OSA, IEEE and SPIE representatives as follows:

_____ _____
MARIA CALVO, ICO DATE

_____ _____
JAYNE SOMES-SCHLOESSER, OSA DATE

_____ _____
MARIA YZUEL, SPIE DATE

_____ _____
RICHARD C. LINKE, IEEE Photonics Society DATE

Contact for more information is:
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Phone: +1 *202141611420; Fax* +1 *202/416/6134; Email: kcoffm@osa.org*

FINANCES

ICO TREASURER'S REPORT (2008-2011)

James Harrington, ICO Treasurer

The ICO has been able to retain a cash balance of $137,613 in our treasury. This amount is held in US dollars ($119,136) at the US Bank of America and in Euros (18,477 €) in the Caisse D'Epargne in Paris. The primary source of income that the ICO receives is derived from membership dues contributed by the Territorial Committees (TCs). The money that the ICO expends is used mostly to support conferences, ICO prizes, and travelling lecture awards. The balance sheet will be updated at the ICO-22 meeting as this report is being prepared in advance of that meeting.

A persistent problem this year as in past years is the collection of dues and dues in arrears. This is a problem which has existed for some time and it is an issue that needs to be addressed. So far in 2011, only 27 out of 51 territories or 53% have paid their dues through June, 2011. These 27 TCs account for 74% of the total 2011 dues ($39,000) that are owed. This is close to the same percentages for 2010. Worse yet is the money owed us prior to 2011. While the financial records for the years prior to 2006 are sometimes sketchy, the most reliable data show that we are owed about $41,675 in back dues. The non-payment of dues goes back, in some cases, well beyond 5 years. In fact there are approximately 15 out of 51 TCs who have not paid or even never paid dues for greater than 5 years. For these TCs the ICO needs to decide how to handle this situation. According to a motion approved by the Bureau in 2010,

"Territorial Committees which are in arrears on their dues for more than 5 years will have their membership status demoted to Associate status. This means no shares, no votes, no officer on the Bureau, and no ability to ask for financial support. "

One of the problems associated with membership is that some TCs have difficulty determining which optical organization is currently responsible for paying the TC's ICO dues. In some cases we are working with these TCs to restructure their dues schedule and to arrive at an equable settlement for their back dues.

The biggest expense of the ICO outside of the money given to support conferences, travel, and prizes is for publication and mailing of the newsletter and green books. So far in 2010-2011 these publishing and mailing costs come to $7,700. One way to reduce printing and mailing costs would be to consider sending CDs of the green book instead of a printed copy and to transition to an electronic version of the newsletter.

As many of you may know, we have been in contact with the Optical Society of America Foundation (OSAF) regarding the acceptance of monetary gifts by US donors for the use of the ICO. This has been ongoing for a number of years and we have recently agreed to have any gift monies pass through the OSAF to us. The reason for this is that we are a 501(c)4 organization.

This means that monies donated by US citizens to the ICO do not exempt the donor from paying US taxes on their gift. In contrast the OSAF is a 501(c)3 organization (as is the OSA itself) and thus the OSAF can accept donations without the donor paying US tax on their donation. The easy workaround for the ICO is to have the money donated to the OSAF and then given to the ICO for our use. Then the US citizen gets a tax-free donation and the ICO receives the money. The Memorandum of Understanding (MOU) has now been signed by both the OSAF and the ICO president, Maria Calvo, so we may now solicit donations which will come through the OSAF to the ICO for the activities that we normally support. Those interested may go to the OSAF website (http://www.osa-foundation.org/news/pressreleases/ico) for more information and an application for making donations.

Balance Sheet - 2011 for ICO-22

Assets		
Current assets	As of 7/22/11	
Checking/Saving		
Bank of America - checking	$11,936	
Bank of America - money market	$107,200	
French account-converted 1 Euro =1 .43 dollars	$18,477	
Total checking/money market		$137,613
Accounts receivable-dues		
Dues 2011 - still owed	$10,000	
Total dues in arrears - still owed	$41,675	
Write-off back dues - bad debt	-$27,325	
Miscellaneous - book royalty income		$200
Total accounts receivable		$24,350
Total assets		$161,963
Liabilities and equity		
Total liability		$0
Equity		
Retained earnings		$161,963
Total liabilities and equity		$161,963

A somewhat longer term issue is a re-examination of the units that we assess each TC as a means of determining their dues. The current dues rate is based on $175/unit. The number of units for any territory varies from 1 to 18 units. The units that each TC is assigned are based on information from the World Bank on the economic status of the various countries. The ICO established the numbers of units many years ago but we feel that it is now time to re-evaluate the units assigned to each territory in light of economic changes since the units were established. We want to be certain that the units are assigned equably.

Finally, in an attempt to more accurately reflect our current financial position, I have decided that it is necessary to write off as bad debt past dues that I feel will never be paid. From the balance sheet you can see that we are owed about $41,675 from dues in arrears. I have made an analysis of those TCs that are in arrears for more than 5 years and based on this I have determined that there is $27,325 in bad debt that is uncollectable. This bad debt is shown as a write off in the Performance Forecast for this year. While this write off serves to give a better picture of our financial position it also portends difficult times ahead as may be seen in both the Performance Forecast for this year and the Proposed Budget for the next three years. The deficit for this past year is over $55,000 assuming that we do not collect anymore dues for 2011 and we include the one-time write off of $27,325. Writing off the bad debt this year coupled with the grant to ICO-22 of $7,500 makes the deficit rather high for the year. Looking ahead at the 3-year proposed budget you can see that there will be a deficit of over $39,000 if we continue the same spending rate. In essence this means that we will have to draw more money from our reserves which at this rate could diminish rapidly over the next decade unless something is done.

Performance Forecast

For period 10/1/2010 - 9/30/2011

Income		
2010 - 2011 Dues	$39,000	
Less Dues not collected yet, see Accounts Receivable Asset on Balance sheet.	$10,000	
Net 2010 - 2011dues collected		$29,000
Royalties		$0
Interest		$0
Total Income		$29,000
Expenses:		
Conference support	$22,500	
ICTP Winter College – Trieste 2011	$5,000	
Secretariat - A. Guzman	$15,560	
ICO Prizes/awards/travel	$5,000	
Printing and mailing newsletters	$7,700	
ICSU dues for 2010 and 2011	$1,500	
Total recurring expenses for 2010 - 2011 activities		$57,260
(One time write off of uncollectable dues, note: $14,300 of prior year dues remain in Accounts Receivable.)		$27,325
Total Expenses		$84,585
Total Surplus/(Deficit)		($55,585)

Note: if all 2010 - 2011 dues are collected and we exclude the Accounts Receivable write off the net deficit for the period would be $8,260

COMMITTEE REPORTS AND AWARDS

INTERIM REPORT OF THE ICO NOMINATING COMMITTEE FOR 2011 ICO BUREAU ELECTIONS

The Statutes and the Rules and Codes of Practice of the International Commission for Optics (ICO) dictate the procedures by which the elections and the appointments of the members of the ICO Bureau are carried out. The elections always take place at a General Assembly during the triennial Congress of the ICO. The next such Congress, ICO-22, is held on 15-19 August in Puebla, Mexico, and on that occasion the Executive Committee and 8 Vice-Presidents for the 3-year term 2011-2014 will be elected. The International Organization Members of the ICO are to appoint their representatives to the Bureau prior to ICO-22.

During the current term the Nominating Committee has consisted of Ari T. Friberg (Finland, chair *ex officio*), Anna Consortini (Italy), René Dändliker (Switzerland), John Love (Australia), and Bahaa Saleh (USA). This Committee is in charge of the elections and the appointments of the new Bureau for the term 2011-2014.

In accordance with the ICO procedures, letters have been sent to all Territorial Committees in 2010 calling for nominations for all ICO Bureau positions to be received by 28 February 2011, and in 2011 asking for endorsements and further nominations to reach the Nominating Committee by 30 June 2011. As of this date, 30 April 2011, the following nominations have been duly received:

Candidates for President:	Duncan Moore (USA) Fernando Mendoza (Mexico)
Candidate for Secretary General:	Angela M. Guzmán (Colombia)
Candidate for Associate Secretary:	Gert von Bally (Germany)
Candidate for Treasurer:	James Harrington (USA)
Candidates for Vice-President:	Zhou Bingkun (Chinese Optical Society) Yasuhiko Arakawa (Japan) Carmiña Londoño (USA) Zohra Ben Lakhdar (Tunisia) Moshe Oron (Israel) (* from industry) Tomasz Szoplik (Poland) Fredrik Laurell (Sweden) Humberto Michinel (Spain) Roberta Ramponi (Italy)

* The Bureau must contain at least two elected Vice-Presidents representing industry.

The position of *Past President* for the term 2011-2014 will automatically be assumed by the current President, Maria L. Calvo (Spain).

It is important to remember that nomination process for all Bureau positions does not close until 24 hours before the second General Assembly at ICO-22. Likewise, endorsements of the candidates by the various Territorial Members are also possible up until that time. All

candidates are requested to provide a brief CV and statement, available for the delegates at the General Assembly.

The election activities take place, as indicated, at the General Assemblies at ICO-22 in Puebla. The first General Assembly is scheduled for Monday 15 August 2011 at 17:00-19:00, and the second General Assembly takes place on Wednesday 17 August 2011 at 17:00-19:00.

Regarding the Vice-Presidents representing the ICO International Organization Members, letters have been sent to all these organizations with the request to appoint their representative prior o the General Assembly at ICO-22. If the representative is elected on the Executive Committee or as one of the 8 elected Vice-President, the organization appoints another representative at its earliest convenience but no later than 30 September 2011.

Ari T. Friberg
Past President, ICO
Chair, ICO Nominating Committee

ICO TRAVELING LECTURER PROGRAM REPORT

The travelling lecture award is designed to provide financial assistance to those scientists and engineers who wish to travel to give a series of lectures on topics in the optical sciences. Most often these awards are given for those travelling to developing countries. The awards are not designed to support travel to attend or present a paper at a scientific conference. This year we had several individuals who applied for a Travelling Lecture Award to attend an EOS conference. We responded to each on these individuals that we could not give an award for travel to a professional society meeting citing the information on the ICO website:

Imrana Ashraf Zahid introduces quantum optics to students in Marrakech.

"

The (Travelling Lecture Award) program is aimed specially at developing nations, but is not necessarily restricted to them. It is hoped that visits will lead to closer collaboration between the

lecturer and the scientists of the destination territory.... Generally, these grants will not be awarded simply to support international conference attendance."

Those applying for support to an EOS meeting were referred to Maria L. Calvo for the possibility of receiving one of the IUPAP awards.In 2008, we had one traveling awardee, Prof. Imrana Ashraf Zahid, Associate Professor from the Department of Physics at Quaid-i-Azam University in Islamabad, Pakistan. She traveled in November 2008 to Siam - Department of Physics, Faculty of Sciences Semlalia. Her contact was Dr. Khalid Berrada, Associate Professor, in the Department of Physics- Faculty of Sciences Semlalia (Av. Prince Moulay Abdellah – B.P.2390) in Marrakech, Morocco. (See article in ICO Newsletter **78**, January 2009).

In 2010, we had one traveling awardee, Prof. Maxim G. Tomilin, St.-Petersburg State University of Information Technology, Mechanics and Optics, Russia who traveled to Argentina and Cuba in February 2010 to give a series of lectures. The host institution was Centro de Investigaciones Ópticas de la Plata (CIOP) and the contact was Dr. Hector Rabal, (Cno Centenario, e/ 505 and 508, La Plata) Buenos Aires, Argentina. See article in ICO Newsletter **86**, January 2011).

Hector Rabal and Maxim Tomilin in the auditorium of the CIOp.

For 2011, we have one nomination for a travel award for Vadim Parfenov, Ph.D., Associate Professor, St.Petersburg State Electrotechnical University (ETU), Russia. Host institution, Instituto Politecnico Nazional CICATA-IPN, Unidad Altamira, Mexico. Contact - Dr. Luis Ponce. Also visit Instituto de Materales y Reactivos, Universidad de la Habana, Cuba. Contact - Dr. Bradies Lambert Navarrete.

To date we have not made a decision on this request.

We have had only a small number of requests for this award. Sometimes the requests come from those who have already received an earlier award. In general, I think that we need to reach out for more applicants as we project giving 4 to 5 awards over a three-year period.

Jim Harrington
ICO Treasurer

TRIENNIAL REPORT OF THE ICO PRIZE COMMITTEE

1) Introduction

ICO has established in 1982 the ICO Prize, to be given each year to an individual who has made a noteworthy contribution to optics, published submitted for publication before he or she has reached the age of 40. (Specifically, the Prize winner must not have reached the age of 40 before December 31 of the year for which the Prize is awarded). The character of the work of successive Prize recipients should preferably alternate between predominantly experimental or technological and predominantly theoretical. The "noteworthy" contribution in optics is measured chiefly by its impact (past or possibly future) on the field of optics generally, opening a subfield or significantly expanding an established subfield in research or technology.

The award winners to this date are:

1982 Antoine Labeyrie, France
1983 James R. Fienup, USA
1984 J. Christopher Dainty, U.K.
1985 Sergei I. Stepanov, USSR
1986 Kensuke Ikeda, Japan
1987 Alain Aspect, France
1988 no prize bore the number of the year 1988. The 1988 prize was changed to 1989 in order
to coincide with the year of the award
1989 Demetri Psaltis, USA
1990 Rosario Martinez-Herrero, Spain
1991 David A.B. Miller, U.K. and USA
1992 Wolfgang Peter Schleich, Germany
1993 Aleksander K. Rebane, Estonia
1994 Emmanuel Desurvire, France
1995 Tony F. Heinz, USA
1996 Vladimir Buzek, Slovakia
1997 Andrew M. Weiner, USA
1998 David Mendlovic, Israel and Haldun Ozaktas, Turkey
1999 Hugo Thienpont, Belgium
2000 Stefan W. Hell, Germany
2001 Nabeel A. Riza, Pakistan and USA
2002 Prize not accorded
2003 Benjamin J. Eggleton, Australia
2004 Ashok V. Krishnamoorthy, India
2005 Immanuel Bloch, Germany
2006 Hideyuki Sotobayashi, Japan
2007 Susana Marcos, Spain
2008 Zeev Zalevsky, Israel
2009 Rajesh Menon,USA
2010 Reinhard Kienberger, Germany

The ICO Prize Committee for the term 1 October 2008 to 30 September 2011 has been chaired by Professor Min Gu, ICO Vice President, (mgu@swin.edu.au) from the Centre for

Micro-Photonics, Faculty of Engineering and Industrial Sciences, Swinburne University of Technology, John Street, PO Box 218, Hawthorn, Victoria 3122, Australia. Other members of the Committee are four ICO Vice Presidents, Professor Iam Choon Khoo, Professor Fernando Santoyo, Dr. Phil Stahl and Professor Bingkun Zhou, and Professor Paul Buah-Bassuah (not ICO Bureau member).

The committee is now in the process of selection of the 2011 prize and the winner will be announced at ICO-22.

2) Rules and Form:

ICO established in 1982 the ICO Prize, to be given each year to an individual who has made a noteworthy contribution to optics, published submitted for publication before he or she has reached the age of 40. (Specifically, the Prize winner must not have reached the age of 40 before December 31 of the year for which the Prize is awarded). The character of the work of successive Prize recipients should preferably alternate between predominantly experimental or technological and predominantly theoretical. The "noteworthy" contribution in optics is measured chiefly by its impact (past or possibly future) on the field of optics generally, opening a subfield or significantly expanding an established subfield in research or technology.

The Prize includes:

- a citation,
- a cash award of an amount established in the triennial budget of ICO, and the

invitation to present an invited paper and receive the award at the next ICO Congress or another ICO meeting mutually agreed to by the bureau and the award winner.

Ernst Abbe Medal donated by the Carl Zeiss Foundation.

Every year, the ICO Prize Committee issues a call for nominations that is published in the ICO Newsletter, receives the nominations and selects the recipients for approval by the Bureau at its next meeting. The award needs not be made each year if the Prize Committee so chooses. The Prize is preferably given to an individual, but it can be shared by two persons. Eligibility for the Prize is not excluded by previous prizes awarded to the individual. The selected Prize winner is then announced in the ICO Newsletter and, as appropriate, in one or more optics journals. The prize will be presented at the next appropriate major ICO meeting and the Prize winner will be expected to deliver an invited talk at that Meeting. Posters of the Prize are also available under request to ICO Secretariat.

The formal rules of the ICO Prize are found in section 9 of the Rules and Codes of Practice in this booklet.

3) Award nomination form: http://www.ico-optics.org/awards.html

4) ICO 2008, 2009, 2010 Prize winners

a) a) **2008 ICO Prize: Zeev Zalevsky, Israel**

The 2008 ICO Prize was awarded to Zeev Zalevsky. Zalevsky was recognized for "his achievements and significant contribution in the field of optical super resolution, in particular for his work in theoretical and experimental definition of various approaches for exceeding Abbe's classical limit of resolution."

Zalevsky was born in Russia in 1971 and received his BSc and PhD degrees in electrical engineering from Tel-Aviv University in Israel in 1993 and 1996, respectively. He is currently a professor of electro-optics in the school of engineering at Bar-Ilan University in Israel. His major fields of research are optical super resolution, nano-photonics and silicon photonics, in fiber devices and microwave photonics.

Zeev Zalevsky, professor and researcher at the Bar-Ilan University in Israel, 2008 ICO Prize Awardee

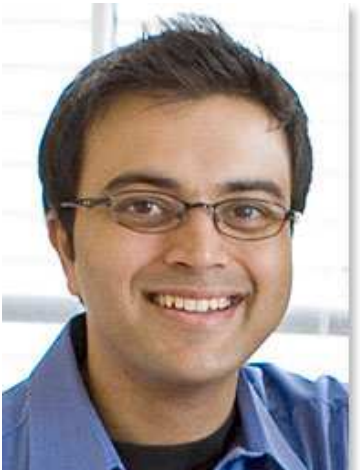
In his work in the field of super resolution Zalevsky helped invent various ways to overcome diffraction and the geometrical limitations of detectors by performing adaptation and conversion of spatial degrees of freedom from the spatial domain into non-spatial domains (such as time, colours, code and polarization state), allowing the multiplexing of this spatial information and later on its extraction and reconstruction. He also worked on the axial extension of depth of focus and its relation to visual optics sciences.

In addition to his scientific activities, Zalevsky has helped found several start-up companies in various fields of electro-optics. Currently he is head of the electro-optics track in the school of engineering at Bar-Ilan University and leads a research group and laboratory with 15 PhD and masters students. Zalevsky coordinates several research grants in topics related to his fields of interest, which are funded by national agencies and high-tech companies. He is also the current head of the nano photonics group in the new nanotechnology centre being established at Bar-Ilan University.

In 2007 Zalevsky was awarded the Krill Prize for excellence in scientific research by the Wolf Foundation for his achievements in free-space optical systems and methods for enhanced imaging and sensing, electro-optical in-fiber and waveguide-based devices for data sensing, processing and RF photonics.

Zalevsky has published two books, 12 book chapters, more than 170 refereed papers and he holds more than 10 issued patents. He has delivered many invited talks in various conferences in electro-optics and has taken part in organizing several international scientific events. He delivered his Ernst Abbe Lecture at the ICO Topical Meeting on "Emerging Trends & Novel Materials in Photonics" in Delphi, Greece in October 2009**,** and served as Lecturer in the ICTP Winter College on Frontiers in Imaging Science n February 2011.

b) 2009 ICO Prize: Rajesh Menon, USA



Rajesh Menon, assistant professor at the University of Utah and affiliate of the Research Laboratory of Electronics at MIT, 2009 ICO Prize Awardee.

Dr. Rajesh Menon, currently a Utah Science, Technology and Research (USTAR) assistant professor in the Department of Electrical and Computer Engineering at the University of Utah and an affiliate of the Research Laboratory of Electronics at the Massachusetts Institute of Technology (MIT), has been selected by the ICO Prize Committee as the recipient of the 2009 ICO Prize for his "breakthrough achievement in nanolithography, in particular for his invention and development of the absorbance modulation method for a wider range of nanophotonic applications".

Menon has a BEng from the Nanyang Technological University in Singapore. He gained his MSc and PhD in electrical engineering and computer science from MIT in 2000 and 2003, respectively, under the supervision of Prof. Henry I Smith. Menon also co-founded LumArray Inc., an MIT spin-off company that is commercializing optical-maskless nanolithography.

Traditionally, the smallest feature that can be patterned using light is limited to about half a wavelength. This "far-field diffraction limit" prevents visible light ($\lambda > 400$ nm) from resolving features below ~200 nm. A major research goal of Menon's has been to overcome this barrier. As a first step he invented absorbance modulation, which enables the confinement of light to deep-sub-wavelength dimensions using far-field optics (see figure). He proposed this idea in 2004. Subsequently, he developed a theoretical model that verified the concept, achieved preliminary experimental verification of absorbance modulation in 2006, and demonstrated deep sub-wavelength patterning in 2008. His article "Confining light to deep sub-wavelength dimensions to enable optical nanopatterning" (*Science* 2009) garnered media coverage, primarily because of the fundamental nature of the breakthrough, and also because of the large number of potential applications enabled by this advancement. He also invented a dual wavelength lens to extend the application of absorbance modulation to two dimensions. In late 2008 he was able to extend absorbance modulation to optical imaging at the nanoscale.

In addition to the work for which he receives the ICO Prize, Menon has contributed to other important research and holds 17 patents, alone or jointly with others. His research interests include nanopatterning, nanofabrication, optical nanoscopy, solar concentrators and plasmonics. During his doctoral studies, he was part of a team that developed an optical maskless patterning technology referred to as zone-plate-array lithography (ZPAL), which is based on a large array of diffraction-limited probes (tightly focused laser beams) created via diffractive optics. He led the effort to integrate the system and performed its initial characterization. Modifications to this system enabled scanning confocal microscopy with potential for massive parallelism. With colleagues, he designed, fabricated and characterized the first high-NA photon sieves (NA up to 0.9). He pioneered novel techniques to quantitatively estimate image contrast and measure

point-spread functions, and led the effort to design, build and characterize the first water immersion maskless patterning system, which wrote 115 nm lines and spaces using 400 nm wavelength light. Under his supervision, a replication method for high-NA diffractive optics using nano-imprint lithography was developed and its lithographic performance characterized.

He delivered his Ernst Abbe Lecture at the ICO Topical Meeting ICO Topical Meeting on "Optics and Energy" in Paris, France in October 2010**,** and served as Lecturer in the ICTP Winter College on Frontiers in Imaging Science n February 2011.

c) 2010 ICO Prize: Reinhard Kienberger, Germany

Reinhard Kienberger was born in Graz, Austria, in 1971. He studied electronic engineering at the Technische Universität, Vienna. His scientific career started in 1998 with his diploma thesis: "Set-up of an automatized measurement system for the spectral analysis of X-rays". At the start of his PhD studies in the group of Ferenc Krausz in Vienna, he worked on relativistic electron acceleration by ultrashort high-energy laser pulses and participated in experiments in femtosecond X-ray fluorescence in boron and carbon by use of high-order harmonic generation (HHG) from ultrashort laser pulses.

Later on, he concentrated on HHG source development and measurement methods. By filtering a spectral band in the cut-off region of harmonics generated by few-cycle laser pulses having a cosine-shape, he – with a few co-workers – succeeded in the generation of isolated sub-femtosecond XUV pulses, the first flashes of light measured that were shorter than femtosecond.

Dr. Reinhard Kienberger, professor of experimental physics at the Technische Universität Munich. 2010 ICO Prize Awardee.

In 2004, within the framework of a fellowship from the Austrian Academy of Sciences, Kienberger was working as a visiting scientist at the Stanford Linear Accelerator Center (SLAC) in Menlo Park, California, US. He developed a new measurement system for the temporal characterization of linac-based ultrashort X-ray pulses. This method has recently been implemented at the Linac Coherent Light Source (LCLS) at SLAC, the world's first X-ray free electron laser.

In 2005 Kienberger moved to the Max Planck Institute of Quantum Optics in Garching, near Munich, Germany. He became leader of a Max Planck Junior Research Group and received the Sofja Kovalevskaja Award of the Alexander von Humboldt Foundation. In 2008 he became professor of experimental physics at the Technische Universität Munich and received a prestigious starting grant from the European Research Council.

During this decade Reinhard Kienberger has contributed decisively to a series of first-time scientific achievements like the generation and measurement of a single sub-femtosecond pulse,

steering the atomic-scale motion of electrons with light fields, the real-time observation of an atomic inner-shell decay, the measurement of time intervals as short as 100 attoseconds, the sampling of the electric field of visible light, the time-resolved measurement of attosecond electron transport in a solid, and the single-shot measurement of the absolute phase (carrier envelope phase) of a few-cycle laser pulse, all published in Science and Nature.

The ICO Prize Committee, chaired by Prof. Min Gu (Swinburne University of Technology, Australia), on giving this award recognized Kienberger's "breakthrough work in attosecond science and its applications in metrology and spectroscopy" and emphasized that attosecond technology is not a simple extension of femtosecond technology to a new timescale but a radically different technology. Controlling electrons is at its very heart. Kienberger has made breakthroughs: the first ever generation of electromagnetic pulses lasting less than a femtosecond; the first time-resolved observation of light oscillations and release of an electron from its atomic (bound) state; the first ever real-time observation of electron motions deep inside an atom; the first precision measurements in the attosecond range by means of the so-called light-field-driven streak camera.

Dr. Kienberger will deliver his Ernst Abbe Lecture at the ICO-22 Congress in Puebla, Mexico, in August 2011.

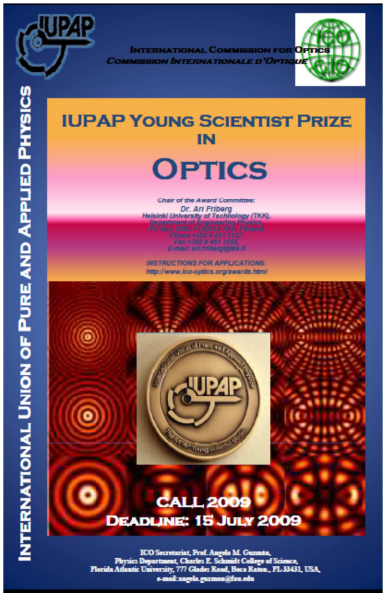
TRIENNIAL REPORT OF THE IUPAP YOUNG SCIENTIST PRIZE IN OPTICS COMMITTEE

1) Introduction

The International Union of Pure and Applied Optics (IUPAP) decided in 2005 to establish the IUPAP Young Scientist Prize that is separately available for each of the IUPAP Commissions and Affiliated Commissions representing the different sub-fields of Physics. Each IUPAP Commission and Affiliated Commission may introduce the Young Scientist Prize in its field under a common set of guidelines set up by the IUPAP. These guidelines regulate the prize itself, the eligibility of the nominations, and the selection procedure of the winner.

The International Commission for Optics (ICO) is an Affiliated Commission (AC.1) of the IUPAP, representing the field of Optics within IUPAP. In its meeting in Sydney in July 2008, the ICO Bureau decided to adopt the IUPAP Young Scientist Prize in Optics and to award the first such prize as soon as possible. It was agreed that the IUPAP Young Scientist Prize in Optics will be administered by the ICO in a similar manner as its other prizes and awards.

An ICO Committee for the IUPAP Young Scientist Prize in Optics for the triennial period 2008-2011 was set up. Its constitution is as follows: Ari T. Friberg (Finland, Chair*), Carmen Cisneros (Mexico, IUPAP representative), Min Gu (Australia, Chair of ICO Prize Committee), Yasuhiko Arakawa (Japan), and Duncan Moore (USA). (*) Ari T. Friberg resigned as chair and member of the Committee in March 2010.



Poster for the IUPAP Young Scientist Prize in Optics in 2009

The Committee proposed the specific rules applicable to the IUPAP Young Scientist Prize in Optics and established the nomination process for this prize. Both were approved by the ICO Bureau in its meeting in Delphi in October 2009. Posters, advertisements, and calls for nomination for the prizes in the years 2009-2011 were prepared and distributed internationally by the ICO Secretariat.

2) Rules

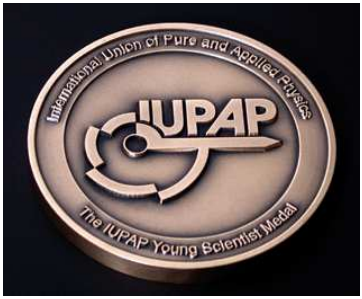
The IUPAP Young Scientist Prize in Optics will be awarded annually through the ICO to an individual who in early career has made an outstanding contribution to applied optics and photonics. The Prize is an achievement prize for optical scientists in the beginning of their careers. Specifically, the rule is that by the end of the year the prize is given, the awardee must have a maximum of eight (8) years of research experience following the doctoral degree. Career interruptions are excluded.

The Prize includes:

- An IUPAP Young Scientist Medal, with the name and discipline (Optics) of the recipient engraved on one side. The other side is common to all IUPAP Young Scientist Prizes.
- A certificate with citation.
- A cash award determined by the IUPAP (€1,000 in 2009-2011).

The Prize is awarded at a major ICO conference (endorsed by the IUPAP), where the recipient is expected to deliver an invited presentation.

The formal rules of the IUPAP Young Scientist Prize in Optics are found in section 12 of the Rules and Codes of Practice in this booklet.



IUPAP Young Scientist Prize medal

3) Award nomination form http://www.ico-optics.org/awards.html

4) IUPAP Prize 2009 and 2010 winners

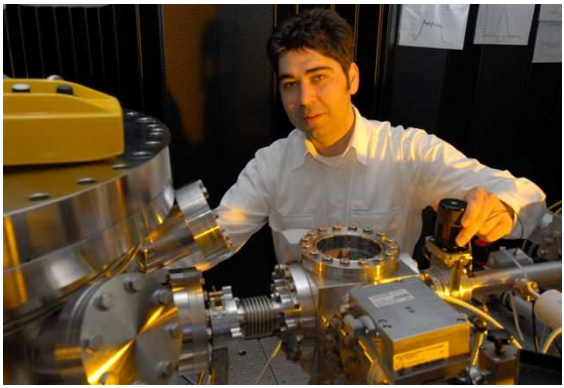
a) 2009 IUPAP Young Scientist Prize in Optics: Eleftherios Goulielmakis

Dr. Eleftherios Goulielmakis, a 35-year-old research scientist at the Max Planck Institute of Quantum Optics in Garching, Germany, is the first recipient of the IUPAP Young Scientist Prize in Optics, administered by ICO. The prize is awarded to individuals who have made

noteworthy contributions to applied optics and photonics within the first eight years of research experience after earning their PhD. Goulielmakis was awarded the prize in recognition of his "outstanding contributions in attosecond physics, particularly for the generation of attosecond pulses and their application for the direct measurement of light waves".

Goulielmakis's research interests includes ultrafast transient phenomena in atoms, molecules and condensed matter that evolve at enormous rates, on a timescale of tens to thousands of attoseconds (1 as = 10^{-18} sec). To investigate these processes he has developed techniques that allow the precise control of ultrashort light pulses.

One of his main achievements is the generation and measurement of pulses in the extreme ultraviolet part of the spectrum that last only 80 as (Goulielmakis et al. 2008 *Science* **320** 1614). These pulses, which comprise the shortest "flashes of light" generated to date, are produced when intense, precisely controlled fields of light interact with atoms to emit X rays. Such pulses open the door to the study of ultrafast transient phenomena in atoms, molecules and condensed matter with unprecedented temporal resolution that approaches the atomic unit of time (~24 as).



First recipient of the IUPAP Young Scientist Prize in Optics, Dr. Eleftherios Goulielmakis, Max Planck Institute of Quantum Optics in Garching, Germany.

Goulielmakis pioneered the use of attosecond pulses in the sampling of the waveform of light with sub-optical-cycle resolution. This enabled him and his colleagues to perform in 2004 the first direct measurement of lightwaves with a technique dubbed the "oscilloscope of light waves". This provided the groundwork for creating and controlling waveforms of light with sub-optical-cycle accuracy. Such waveforms can be used to steer the ultrafast motion of electrons at unprecedented speeds and may someday enable the realization of lightwave electronics – electronics driven by the electric field of light at petahertz frequencies, several orders of magnitude beyond the state of the art of modern electronics (Goulielmakis et al. 2007 *Science* **317** 769).

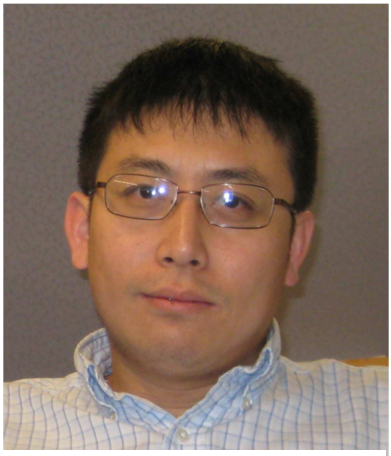
Goulielmakis studied physics at the University of Crete, in Greece. He received his PhD from Ludwig-Maximilians-Universität München, Germany, in 2005. At present he is a scientist in the Max Planck Institute's Division of Attosecond Physics, as well as an adjunct professor of physics at Pohang University of Science and Technology in South Korea. In 2007 he received the Foteinos Prize of the Academy of Athens.

His current research includes the creation and control of sub-optical-cycle waveforms of light for triggering ultrafast dynamics on the nanoscale as well as the combination of attosecond technologies with classical spectroscopic techniques with the aim of investigating unexplored electronic processes in atoms and molecules.

Goulielmakis has been invited to receive the award and deliver a paper on his research at ICO-22, the ICO general meeting to be held in Puebla, México, in August 2011.

b) 2010 IUPAP Young Scientist Prize in Optics: Shuang Zhang

The ICO Committee of the IUPAP Young Scientist Prize in Optics has awarded Dr. Shuang Zhang the 2010 prize for his "outstanding contributions in metamaterials and plasmonics, particularly the first demonstration of the double-fishnet structure and excellent achievements in realization of the first three-dimensional optical negative-index metamaterials".



Dr. Shuang Zhang, winner of the 2010 IUPAP Young Scientist Prize in Optics.University of Birmingham, UK.

Zhang was born in Liaoning province, China, in 1975. He received his BS and MS in physics from Jilin University, China, in 1996. He obtained another MS in physics from Boston's Northeastern University in 1999, where his research focused on numerical studies of neuron activities.

Zhang moved to the University of New Mexico in 1999, where he worked on his PhD in Steven Brueck's group at the Center of High Technology Materials. In 2003, Zhang started working on the development of plasmonic structures and optical metamaterials whose electromagnetic properties cannot be obtained from natural materials. He designed and realized nanomagnetic resonators that exhibited negative magnetic responses at mid-infrared frequencies – several orders of magnitudes higher than what had been demonstrated previously. Zhang also developed the so-called "double fishnet" metamaterials, which extended the investigation of negative-index metamaterials to the optical regime. This work has inspired numerous follow-up studies by many different research groups around the world.

After he obtained his PhD in 2005, Zhang worked briefly as a postdoc at the development of quantum dot-based single-photon detectors. From 2006 to 2010, University of Illinois, Urbana Champaign, where his research focused on the Zhang initially worked as a postdoc and then later as an assistant research engineer in Xiang Zhang's group at the University of California in Berkeley. Zhang's major contribution to metamaterials research during this period includes the design and demonstration of the first bulk optical negative-index metamaterials and the first terahertz chiral negative-index metamaterials. He also proposed a plasmonic analogue of electromagnetically induced transparency, which has inspired many experimental works from other groups.

In March 2010, Zhang joined the faculty of the University of Birmingham, UK, where he is a Reader in the School of Physics and Astronomy, and the first member of the academic staff of the Metamaterials Research Centre. Recently, in a joint effort with Imperial College London and the Technical University of Denmark, Zhang demonstrated a macroscopic invisibility cloak that worked for visible light. This work was the first one that used natural crystals to construct

an invisibility device that was capable of concealing objects several orders of magnitude larger than the wavelengths of light.

Zhang's achievements with metamaterials and the invisibility cloak have led to over 30 publications; many of them have been published in high-impact journals such as Nature, Nature Physics, Nature Communications, Physical Review Letters and Nano Letters. These articles have received more than 1400 ISI citations as of March 2011.

TRIENNIAL REPORT OF THE ICO GALILEO GALILEI COMMITTEE

(Oct 1, 2008 - Sep 30, 2011)

1. Introduction

The ICO Galileo Galilei Award was established in 1993 and has been awarded annually since 1994. The Award is granted to those who in addition to their scientific work in pure or applied optics and photonics are active in management and organization of optics in her/his homeland and cooperation outside the homeland. The Award is justified by comparatively unfavorable circumstances under which outstanding contributions are achieved. "Comparatively unfavorable circumstances" refers to difficult economic or social conditions or lack of access to scientific or technical facilities or sources of information.

The award winners are:
1994 Ion N. Mihailescu, Romania.
1995 Rajpal S. Sirohi, India.
1996 Daniel Malacara, Mexico.
1997 Natalyia D. Kundikova, Russia.
1998 Ajoy K. Ghatak, India.
1999 Mario Garavaglia, Argentina.
2000 Vladimir P. Lukin, Russia.
2001 Kehar Singh, India.
2002 Rashid A. Ganeev, Uzbekistan.
2003 Cid B. de Araujo, Brazil.
2004 Milivoj Belic, Serbia and Montenegro, and Caesar Saloma, Philippines.
2005 Valentin Ionel Vlad, Romania.
2006 Mohammed M. Shabat, Palestine.
2007 Oleg V. Angelsky, Ukraine.
2008 Joewono Widjaja, Thailand.
2009 Dumitru Mihalache, Romania, and Marat Soskin, Ukraine.
2010 Mohammad Taghi Tavassoly, Iran

In the period Oct 1, 2008 - Sep 30, 2011 the ICO Galileo Galilei Award Committee was composed of Cid B. de Araújo (Brazil), Gert von Bally (Germany), Paul K. Buah-Bassuah (Ghana), Bishnu P. Pal (India), Mohammed Shabat (Gaza, Palestine), Valentin I. Vlad (Romania), Ichirou Yamaguchi (Japan) and chaired by Tomasz Szoplik (Poland).

2. Rules and form

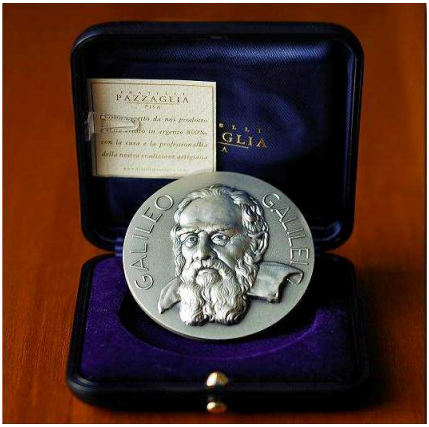
The award will normally be given to an individual, however, two equally rated individuals or a team of several persons for collective contribution or may be selected.

Nominations should clearly document all virtues of nominee, including:

- the description of her/his scientific achievements,
- the activities in management and organization in nominee's homeland,
- the cooperation with and support of organizations outside the homeland,
- the nature of the organization that the candidate is working for in his/her homeland,
- the characterization of the "unfavorable circumstances" under which the work was performed.

Nominations should include nominator's name, address, date and signature. Nominators are encouraged to generate supporting letters; each supporting letter must come from a different country or ICO Territory and bring an additional information on the case. The number of supporting letters will not be a selection criterion.

Selection procedure is composed of the following steps: call for nominations and award nomination form are published on the ICO webpage http://www.ico-optics.org/awards.html; posters inviting nominations are distributed to all ICO Territorial Committees, deadline for nominations is April 15 each year, the Award Committee selects the winner for approval by the ICO Bureau at its next meeting. A winner is presented in the last or the first issue of the ICO Newletter of a year.



Galileo Galilei Medal donated by the SIOF (Società Italiana di Ottica e Fotonica)

The award consists of:

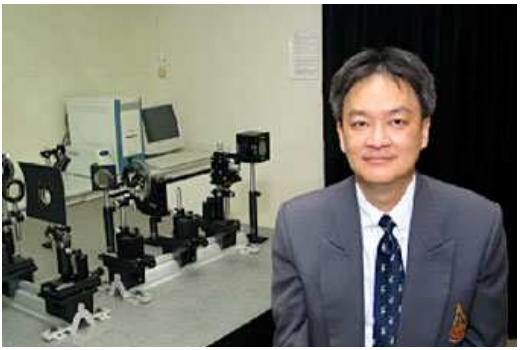
- the Galileo Galilei Medal. The silver medal with the portrait of Galileo Galilei is dionated by the Italian Society of Optics and Photonics, SIOF (Società Italiana di Ottica e Fotonica),
- assistance in travel to present an invited paper and receive the award at the next ICO Congress or another ICO meeting mutually agreed to by the Bureau and the award winner,
- a cash donation,
- special attention and appropriate measures of ICO to support the future activities of the award winner.

The formal rules of the ICO Galileo Galilei award are found in section 10 of the Rules and Codes of Practice in this booklet.

3) <u>The Galileo Galilei Award winner for 2008 was Joewono Widajaja of Thailand.</u>

The Galileo Galilei Award citation reads: "For his outstanding contributions in wavelet transform based signal processing, speckle metrology, holography, join transform correlator, speckle and Internet photonic routing. The Committee was considering as well the comparative unfavorable circumstances since the candidate has done all activities in a developing country (as defined by UN)".

Joewono Widjaja obtained B. Eng. (Electronics Engineering) from Satya Wacana Christian University; Salatiga, Indonesia in 1986, and M. Eng. (Electronics Engineering) in 1991, Dr. Eng. (Electronics Engineering) in 1994, both from Hokkaido University; Sapporo, Japan. In 1994-1995 he was Research Associate at the Electronics Engineering Department, University of Electro-Communication, Japan; where he performed research in wavelet transform correlator and signal processing using photorefractive four-wave mixing. In 1995-1996 he was Postdoctoral Research Fellow at the School of Applied Science, Nanyang Technological University, Singapore and continued to the work in wavelet transform. Since 1997 he has been with School of Laser Technology and Photonics, Institute of Science, Suranaree University of Technology, Thailand, where he became Professor in 2007. Suranaree University of Technology is located in Nakhon Ratchasima Province about 260 kilometers northeast of Bangkok and it is the first autonomous public university in Thailand.



Joewono Widjaja, a professor at the Suranaree University of Technology in Thailand.

Joewono Widjaja research area covers wavelet transform based signal processing, holography and optical information processing, optical correlator and IP address processing for internet photonic routing. He published twenty nine peer-reviewed papers and sixteen proceedings of international conferences. He holds two patents related to method and system for multiplexed transmission and method and apparatus for address processing in optical packet communication. His work in wavelet transform correlator has been published in Encyclopedia of Optical Engineering, Marcel Dekker, New York (2003).

For contributions to academic societies the professional activities of Joewono Widjaja include: Elected member of the Institute of Science Committee for the period 2000 -2001, Editorial board of the Suranaree Journal of Science and Technology since 2003, and Editorial Board of the Optical Memory and Neural Networks (Springer) since 2004. He is Steering committee member of Asian Committee for Experimental Mechanics and was Vice president of SPIE's Thailand Chapter for the years 2004 - 2007. He has been organizing and promoting academic cooperation with overseas academic and research institutions.

Professor Widjaja has received the following honors and awards: in 1991 Asami Award (Distinguished Achievement in Master Program) from Hokkaido University, Monbusho Japanese Government Scholarship for 1987-1994, Japan Science and Technology Agency

(STA) Fellowship from Japan Science and Technology Corporation for December 1999 - April 2000. He delivered an invited talk at SPIE's Photonics Asia in Beijing, China (2002) and a plenary talk at International Conference on Optics and Laser Applications in Yogyakarta, Indonesia (2007).

As for the unfavorable conditions required for the nomination, Thailand is a developing country and its income depends mainly on agriculture and natural resource extraction. After the economic crisis in 1997, Thailand is still in a phase of economic development. It lacks development of modern infrastructures for research and education, and low budget for research especially in more fundamental research in optics.

The Chair of the Galileo Galilei Award for the period October 1, 2005-September 30, 2008 was Ichirou Yamaguchi, Faculty of Engineering, Gunma University, Japan. Members of the Committee: Sergey Bagayev, Siberian Branch of the Russian Academy of Science, Russia; Anna Consortini, University of Florence, Italy; Zohra Ben Lakdhar, University of Tunis, Tunisia; Valentin Vlad, National Institute of Laser, Plasma and Radiation Physics, Bucharest, Romania.

4) The Galileo Galilei Award winners for 2009 were Dumitru Mihalache of Romania and Marat Soskin of Ukraine.

In recognition of his contributions made under comparatively unfavourable circumstances, the award committee granted Professor Mihalache half of the 2009 Galileo Galilei Award "for his achievements in the field of theoretical nonlinear optics".

Dumitru Mihalache, a professor at Horia Hulubei National Institute of Physics and Nuclear Engineering, Bucharest, Romania.

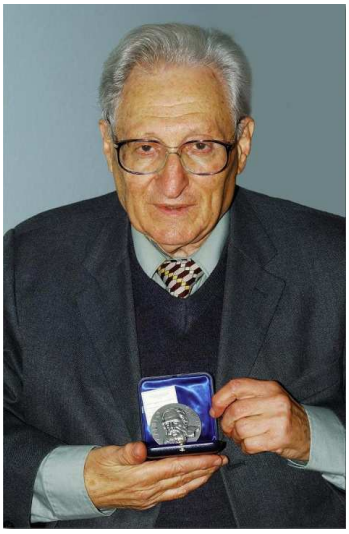
Dumitru Mihalache graduated from the Faculty of Physics, Bucharest University, in 1971, and the Faculty of Mathematics, Bucharest University, in 1977. He is currently a Research Professor at Horia Hulubei National Institute of Physics and Nuclear Engineering, Bucharest, Romania. From April 1979 to April 1983 Prof. Mihalache was a researcher at the Laboratory of Theoretical Physics, Joint Institute for Nuclear Research, Dubna, Russia, working with Prof. V. K. Fedyanin in the field of nonlinear surface polaritons. In 1986 he spent a month in the group of Prof. M. Bertolotti and Prof. C. Sibilia at Rome University “La Sapienza”, Italy, working in the field of nonlinear surface and guided electromagnetic waves in planar structures. His seminal contributions in this field, which have become very important due to the recent discovery of discrete surface solitons at the edges of waveguide arrays, were achieved during two decades of extremely harsh economic and social conditions in Romania.

Since 1990, Professor Mihalache has received international recognition for his work and maintained numerous international collaborations. Recently, with Prof. H. Leblond, Angers University, France, he performed theoretical studies of few-

optical-cycle solitons beyond the slowly varying envelope approximation. He has published more than 200 articles (30 h-index) in refereed journals in the area of theoretical optics with emphasis on nonlinear surface and guided waves (surface solitons), new types of surface waves and surface plasmon polaritons in layered media containing uniaxial crystals, spatiotemporal effects in nonlinear optical media (spatiotemporal optical solitons), vortex solitons in optics and in Bose-Einstein condensates, and on the adequate description of few-cycle optical solitons beyond the slowly varying envelope approximation.

Professor Mihalache predicted the existence of stable three-dimensional spatiotemporal solitons supported by two-dimensional photonic lattices; he found that the Hamiltonian-versus-soliton norm diagram exhibits a two-cusp structure and, correspondingly, a swallow-tail shape (a unique "swallow-tail" bifurcation), which is a rare physical phenomenon. This unique feature is a generic one: it has been also found in radially symmetric Bessel lattices, a result suggesting a promising approach to generate stable "light bullets" in optics and stable three-dimensional solitons in attractive Bose-Einstein condensates.

He has been a member of the advisory editorial board for Optics Communications, and is currently on the editorial board for two Romanian publications: Romanian Reports in Physics and Optoelectronics and Advanced Materials-Rapid Communications. In 1985 he received the Constantin Miculescu Prize for Physics from the Romanian Academy, and in 2008 he was elected a Corresponding Member of the Academy of Romanian Scientists.



Marat Soskin of at the Institute of Physics of the National Academy of Sciences of Ukraine

The second half of the 2009 Galileo Galilei Award went to Professor Marat Soskin of Ukraine in recognition of his contributions made under comparatively unfavourable circumstances during his more than half a century working in science.

The Galileo Galilei Award citation reads “"for his achievements in the fields of tunable lasers, dynamic holography, and linear and nonlinear singular optics".

Marat S. Soskin was born in Kiev in April.1929. He graduated from Kyiv Taras Shevchenko National University (in what is now Ukraine) in 1952 and immediately after graduation was appointed head of the Spectral Industrial Laboratory in Donetsk (Ukraine). After four years there he began a PhD - and life-long career - at the Institute of Physics of the National Academy of Sciences of Ukraine (NAS), where he has led the Department of Optical Quantum Electronics since 1966. In 1970 he received the title "doctor of physical and mathematical sciences" for his research on solid-state lasers. He was appointed professor in 1972 and elected to the NAS in 1988. Though hindered through

most of his career by adverse circumstances, he became a highly respected international figure, recognised especially for his work on singular optics, a research area whose name was coined by him in 1995

In the words of Sir Michael Berry, Melville Wills Emeritus Professor of Physics at the University of Bristol, UK, and one of the supporters of Prof. Soskin's nomination: "Almost single-handedly, he has transformed what was largely the playground of theorists into a thriving area of physics, in which many groups of experimentalists worldwide are actively exploring the fine structure of wave fields. His own research, carried out with very limited resources and under considerable difficulties (political and otherwise) in the small group that he leads, has identified one by one the principal features, first of the optical vortex singularities of waves that can be approximated by scalars, and now of the richer polarization singularities."

The relevance of his productivity is confirmed by his numerous invited talks at international conferences and more than 280 publications (24 h-index), of which his pioneering paper on dynamic holography theory has received more than 1400 citations. Prof. Soskin holds 49 patents and has supervised 25 PhD graduates and 11 doctors of science.

Professor Soskin has received numerous distinctions in Ukraine and the former USSR, having been honoured twice with the Scientific-Technical Prize, in addition to the Academician Sinelnikov Prize of the NAS. In 2009 he received the Academician Denisyuk Medal of the Rozhdenstvensky Optical Society of Russia for outstanding achievements in physical optics, holography and its applications, and the Ukrainian state title Honoured Scientist and Technician of Ukraine.

Nearing his 80th birthday, Professor Soskin is full of new ideas and carries remarkable enthusiasm and energy not reflecting his years. He is now leading research on nanotube/liquid crystal composites and has created optical singularities in laser beams propagating in the liquid crystal interface shell around nanotube clusters, demonstrating once again the qualities that make him an outstanding leader in the exciting field of singular optics.

5) <u>The Galileo Galilei Award winner for 2010 was Mohammad Taghi Tavassoly of Iran.</u>

In the ICO Bureau Meeting held at Institut d Optique – Graduate School in Palaiseau near Paris on October 30, 2010, it was approved the proposal of the ICO Galileo Galilei Award Committee for 2010 to be presented to Mohammad Taghi Tavassoly of Iran.

Professor Tavassoly was awarded his prize by the Galileo Galilei Committee, chaired by Prof. Tomasz Szoplik from Warsaw University, for "his contribution to teaching optics in Iran, conducting original research, and maintaining links between the academic communities active in optics in Iran and the rest of the world". The committee highlighted that besides contributing to teaching optics in Iran, writing original physics textbooks in Persian, creating teaching laboratories, establishing a series of research workshops and conducting original research in his university, Tavassoly's determination helped to maintain links between the academic communities active in optics in Iran and the rest of the world during decades of difficult political relations.

Mohammad Taghi Tavassoly was born in Hamadan, Iran, in 1942. He received his BSc and MSc in physics in 1966 and 1968 from the University of Tehran. He worked for five years as

assistant to the late Prof. M Hessabey, the founder of the first physics department in Iran. He learned valuable lessons from him. During that period, Tavassoly designed a series of experiments for education in optics and electromagnetism and established an optics lab at Shahid Beheshti University. He received his PhD from London University (RHC) in 1977.

Professor Mohammad Taghi Tavassoly of the University of Tehran, Iran.

Back home during a period of political tensions and eight years of a frustrating war, Tavassoly concentrated his efforts on building up the infrastructure required for advanced education and research. In collaboration with colleagues he translated and wrote textbooks, compiled an English-Persian and Persian-English dictionary of physics, instigated the Iranian Journal of Physics, now 27 years old, founded a technical school for training opticians, re-organized the Physical Society of Iran and served as a board member for five terms. He founded the optics committee and served as its president for three terms. Later this committee developed into the Optics and Photonics Society of Iran. Both societies have been very active in organizing annual conferences, national and international workshops, awarding awards, and publishing journals, newsletters and books.

After the war, in 1988, his attention turned to graduate-level education and research. He collaborated with Prof. Y Soubuti, the founder of the Institute for Advanced Studies in Basic Sciences (IASBS) in Zanjan, to build a research lab for optics there. He also established a new optics research lab at the University of Tehran. A considerable number of optics projects have been carried out at both places.

Professor Tavassoly believes that, for sustainable research, public support is vital and it can be attracted by doing research that deals with local issues. With this in mind, he imposes three conditions on his research projects: (a) it must concern a local issue; (b) it must use facilities within the country; and (c) the results should be publishable in an international journal.

Guided by these rules, Mohammad Taghi Tavassoly has been working in Fresnel diffraction from phase steps, light scattering from rough interfaces, and applications of Moiré techniques to the measurement of atmospheric turbulences, determination of spectral line shapes, evaluation of MTFs of printers, and specification of liquid–liquid diffusion coefficients.

Professor Tavassoly's research achievements have been reported in more than 50 papers published in journals and SPIE proceedings, and also in more than 100 presentations at conferences. Detailed descriptions of these works can be found in 12 PhD and more than 60 MSc theses that he has supervised, along with some patents. He has also designed and fabricated several optical devices and instruments that are used in industry and research labs.

Tomasz Tomasz Szoplik,
Chair of the Galileo Galilei Award Committee

TRIENNIAL REPORT OF THE ICO/ICTP GALLIENO DENARDO AWARD COMMITTEE

1) Introduction

ICO, the International Commission for Optics, and ICTP, the Abdus Salam International Centre for Theoretical Physics, Trieste, agreed to establish since 2000 a joint prize, called the ICO/ICTP Award. In September 2007, the ICTP and ICO agreed to rename the ICO/ICTP Award as ICO/ICTP Gallieno Denardo Award to honor the memory and legacy of the late Prof. Gallieno Denardo.

The award winners to this date are:
2000: Arbab Ali Khan (Pakistan)
2001: Arashmid Nahal (Iran) and Fernando Pérez Quintián (Argentina)
2002: Alphan Sennaroglu (Turkey)
2003: Robert Szipöcs (Hungary)
2004: Imrana Ashraf Zahid (Pakistan) and Revati Nitin Kulkarni (India)
2005: Sarun Sumriddetchkajorn, Thailand
2006: Héctor Manuel Moya Cessa, México
2007: Svetlana Boriskina, Ukraine
2008: Mourad Zghal, Tunisia
2009: Saifollah Rasouli, Iran
2010: Cleber Mendonça, Brazil
2011: Ivan Moreno, Mexico and Ryan Balili, Philippines

Members of the ICO/ICTP Gallieno Denardo Award Committee are Ahmadou Wague (chair), Joe Niemela, Anna Consortini and Mitcho Danailov.

2) Rules and Form

The award is reserved for young researchers from developing countries (as defined by the United Nations), who conduct their research in a developing country. It will be given to scientists less than 40 years old (on December 31 of the year for which the award is given), who are active in research in Optics and have contributed to the promotion of research activities in Optics in their own or another developing country.

The award consists of the following:

1. The ICO gives a cash amount of US$1000 and a diploma.
2. The ICTP invites the winner to attend a three-week-long College at Trieste at the next appropriate opportunity, and to give a seminar on his/her work when appropriate. ICTP will pay for travel and living expenses.

The award will be presented to the winner at Trieste in the presence of representatives of ICO and ICTP. The award is given to one person every year. The winner is selected on the basis of nominations received by the Award Committee in response to a call published by both ICO and ICTP. The nominations must be documented with a complete curriculum vitae including a list of publications and selected reprints (no more than three) as well as a complete employment history and a description of the nominee's achievements for the promotion of research activity in developing countries.

3) **Award nomination form:** http://www.ico-optics.org/awards.html

4) **ICO/ICTP 2009, 2010, 2011 award winners**

a) 2009 ICO/ICTP award winner: Saifollah Rasouli

Saifollah Rasouli, 2009 ICO/ICTP Gallieno Denardo Prize Awardee

In 2009 the prize was awarded to Dr. Saifollah Rasouli, currently a postdoctoral researcher in the Physics Department of the Institute for Advanced Studies in Basic Sciences (IASBS) in Iran, the institution that granted his MSc and PhD degrees in Physics with specialization in Optics, in 1997 and 2007 respectively. The citation of Rasouli's award reads: "The prize is assigned for his creative implementation of Moirè interferometry to fiber optics, optical metrology, and atmospheric optics, including measurements of turbulence parameters, and possible applications to wavefront distortion compensation in adaptive optics systems". The prize was granted to the awardee in a special award ceremony during the ICTP's Winter College on Optics.

Dr. Rasouli was born in Zanjan, Iran. In 1994 he received his BSc degree in Applied Physics, specialization in Condensed Matter, from the Shahid Beheshti University, Iran. Much of his recent research relates to imaging through the turbulent atmosphere. The resolution afforded by large earth-based telescopes is limited not by diffraction but by uncorrected effects of atmospheric turbulence. A light wave traveling through the atmosphere acquires distortions as it passes through regions of turbulence-produced refractive index variation. A laser beam, for example, is seen to wander; curvature induced in the wavefront from a star causes astigmatic defocus of the star image in a telescope greater than about 10 cm in diameter. With large-aperture telescopes, even more dramatic effects of wavefront distortions can be observed. A short-exposure image of a star, for example, may have the appearance of a laser speckle pattern.

Dr. Rasouli has concentrated on the exploitation of Moiré techniques for displaying and quantifying the effects of local tilt, or variations in the local angle-of-arrival, of a light wave entering an aperture. He has three Iranian patents relating to Moiré techniques: a Moiré deflectometer (2003), a Moiré slop meter (2006), and a Moiré deflectometer for atmospheric turbulence measurements (2008).

The measurement of angle-of-arrival fluctuations in light propagating through the turbulent atmosphere is important to the evaluation of astronomical imaging, aerial surveying, terrestrial geodesy, optical ranging, and wireless optical communication. Measurements made by Dr. Rasouli's systems can be sent to a real-time processor that controls a rubber mirror actuator, which removes as much as possible the wavefront distortions introduced by the atmosphere.

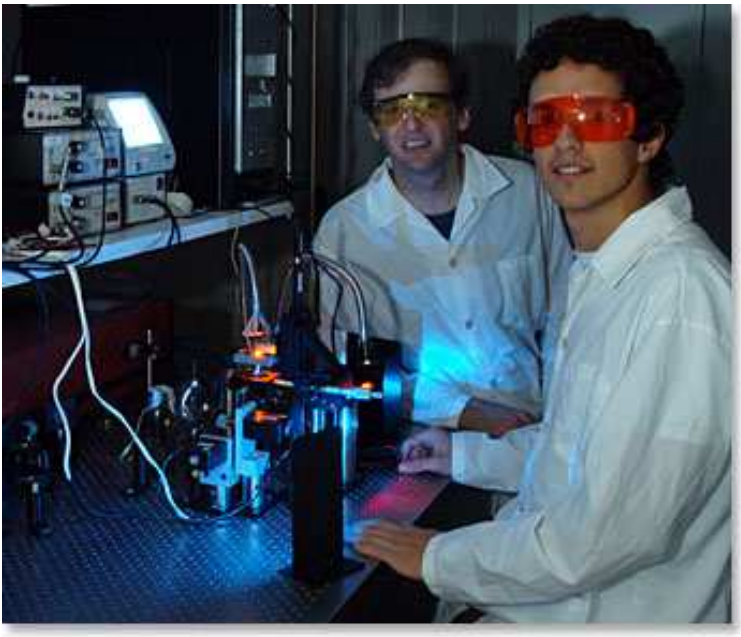
His latest scheme, noteworthy both for its simplicity and its cleverness, illustrates the basic idea. A monochromatic light wave from a small and distant source is incident on a fine-pitch Ronchi ruling. A short distance beyond, a Talbot image of the ruling appears. With diverging-light illumination of the Ronchi ruling, the Talbot image is slightly larger in scale than the ruling itself. If a duplicate of the ruling is placed in the Talbot image plane, in exactly the same

orientation as the original ruling, large fringes result from the moiré effect. Most importantly, any turbulence-produced local variations in angle of arrival of the incident wave, even if quite small, manifest themselves as easily-seen distortions of the moiré fringe pattern. These distortions, captured by a CCD video camera, are analyzed by a computer program executing what is, according to Dr. Rasouli, a computationally efficient algorithm. He has used the technique to determine parameters that characterize the strength of turbulence measured along horizontal paths. He notes that the technique has a wide range of applications, many of which he has already explored, including shaping and glass casting processes, measurements of the refractive index profile of optical fibers, and monitoring the vibrations of large civil structures.

Dr. Rasouli will soon spend an extended period of time at the Inter-University centre for Astronomy and Astrophysics (IUCCA) in Pune, India. There, in collaboration with the IUCAA's instrumentation group, he will test the performance of his prototype wavefront sensor on the 2m optical telescope at the IUCCA Garawali Observatory.

b) 2010 ICO/ICTP award winner: Cleber Mendonça

For 2010 the prize was awarded to Dr Cleber Mendonça of Brazil "for the development of novel methods and procedures of nonlinear optics, in particular the use of femtosecond pulses and femtosecond laser micro-fabrication in polymers for investigating nonlinear optical properties of organic compounds, and for establishing effective interdisciplinary collaborations within Brazil". The award ceremony took place at ICTP during the Winter College on Optics and Energy.



Cleber Mendonça (back), 2010 ICO/ICTP Gallieno Denardo Prize Awardee

Dr Mendonça received his PhD in physics in 2000 from the University of Sao Paulo, Brazil, studying saturable and reverse saturable absorption in organic materials. Upon completing his doctorate he spent seven months working on two-photon absorption in organic materials as a postdoc at the College of Optics and Photonics (CREOL) in Florida. In July 2001 he was hired as a faculty member at the University of São Paulo (Institute of Physics of Sao Carlos) to start research into the nonlinear optical processes of organic compounds with femtosecond lasers. After two years he co-founded the Photonics Group at the University of Sao Paulo, which was created with the purpose of focusing on research projects related to photonics and applied optics. In August 2005 Mendonça joined Dr Eric Mazur's group at Harvard University as a visiting scientist, where he stayed for almost three years, working with femtosecond laser micromachining and ultrafast dynamics in solids.

For the last several years Mendonça's research interest has focused on understanding the relationship between the molecular structure of organic compounds and their nonlinear optical properties induced by ultrashort pulse excitation in particular, seeking to develop a fundamental understanding of how to control the light-matter interaction. He has been conducting pioneering work in Latin America in this field. Such knowledge provides information for the design and synthesis of molecules and materials with enhanced characteristics for applications in optics, photonics, and materials processing.

A major focus of Mendonça's research involves nonlinear optical processes and ultrashort pulses, mainly multi-photon absorption wherein a molecule absorbs two or more photons simultaneously. The nonlinear dependence of these processes on the laser intensity allows their use in the activation of photo-chemical or photo-physical processes with high spatial resolution in 3D. His research in this direction includes the investigation of structure-property relationships for multi-photon absorption in conjugated molecules and polymers with the aim of learning how to design efficient multi-photon absorbers, with implications in photonic devices. These studies involve measurements of the multi-photon absorption spectra on molecules with systematically varied structures, quantum chemistry calculations and theoretical modeling.

He has also conducted studies into the coherent control of light-matter interaction in nonlinear processes through the spectral phase manipulation of ultrashort pulses.

Another research interest of Mendonça is two-photon absorption-driven photopolymerization for the 3D microfabrication of complex microstructures. Using femtosecond pulses, his group has fabricated 3D microstructures with interesting properties aiming at integrated optical devices, as well as biomedical applications.

Besides his scientific achievements, Mendonça has also been involved in outreach programmes through seminars, demonstrations and special lectures prepared to show science and to complement school science education.

Mendonça stimulated the establishment of the Optical Society of America student chapter at the Institute of Physics of Sao Carlos, serving as the adviser of the chapter since its creation in 2005. The student chapter has promoted special seminars and schools in optics and photonics for undergraduate and graduate students. The chapter also created an outreach programme in which chapter members give lectures, special presentations and demonstrations of physics to students of public schools in poor neighborhoods in the city of Sao Carlos.

b) 2011 ICO/ICTP award winner: Ivan Moreno and Ryan Balili

The 2011 award was shared by two young scientists: Ivan Moreno from Mexico "for valuable contributions to optics in the field of radiometry and photometry of light-emitting diodes (LEDs) that have significantly impacted the design of systems that use such LEDs", and Ryan B Balili from the Philippines for "pioneering work in the trapping and condensation of polaritons, providing an important new system in which quantum coherence can be studied, and having potential applications in quantum information processing".

i) Ivan Moreno

Moreno obtained his bachelor degree in physical engineering in 1998 from the Tecnologico de Monterrey, Mexico, and his PhD in 2003 at the Centro de Investigaciones en Optica (CIO) in Leon, Mexico. He is a member of the physics faculty at the University of Zacatecas in Mexico. He has authored 52 articles with more than 411 citations in the areas of solid-state lighting, instrumental optics, colour, thin-film filters, geometric optics, uniaxial optics and interferometry. During the last seven years, Moreno has consolidated an original research programme in radiometry and photometry of light-emitting diode-based illumination in Mexico. Seven of his papers have been included multiple times in the international top download lists of OSA and SPIE, as well as the Institute of Physics. Moreno's award presentation was entitled "A hard way to make a career in optics", a direct reference to the challenges often faced by scientists in developing countries. It contained frequent examples of how to overcome obstacles by asking the right questions and working to turn original ideas into achievable technological developments.

Ivan Moreno (left) and Ryan B. Balili (right), 2011 ICO/ICTP Gallieno Denardo Prize Awardees

ii) Ryan Balili

Balili received his PhD in 2009 at the University of Pittsburgh, US, under the supervision of David W Snoke. His main research goal has been the realization of Bose-Einstein condensation (BEC) in solid-state systems. Initially, he aimed to lay the theoretical foundations of a polariton BEC. That task included designing a microcavity sample that can support strong coupling between excitons and photons so that an ensemble of stable polaritons could be studied. Then he began the successful search for signatures of polariton BEC by a novel trapping method, a stress technique applied to microcavity systems. He was named a "young researcher awardee" by

Physica Status Solidi in 2006. He was also given the Andrew W Mellon Fellowship in 2007 for excelling in research and academics.

He was reinstated as assistant professor in Iligan Institute of Technology, Mindanao State University with a re-entry grant to explore ways of creating superhydrophobic surfaces, and he started setting up a photonics lab. More recently he has turned his attention to biological research that involves optics - in particular the study of the dengue virus, a top priority for the Philippine government.

He is the secretary and president-elect for 2014 of the Physics Society of the southern islands of the Philippines (Samahang Piska ng Visayas at Mindanao, SPVM). The SPVM organizes yearly national physics conferences and summer workshops for high-school physics teachers around the country on modern teaching tools and updating advanced courses.

Cleber Mendonça (back), 2010 ICO/ICTP Gallieno Denardo Prize Awardee

MEETINGS WITH ICO PARTICIPATION 2008-2011

Legislative Period Oct 2008 – 30 Sep 2011

1. Oct 2008 - 30. Sept 2009 (Period 1)	Date	end./cosp. Grant/risk decision by ICO	representative: decision by ICO
Photonics Prague 2008, *Prague, Czech Republic*	27-29 Aug 2008	**end. US$ 0**	Gert von Bally
10th International Conference on New Developments and Applications in Optical Radiometry (Newrad 2008); *Daejeon, Korea*	13-16 Oct 2008	**end. US$ 0**	Yoon Kim
International Topical Meeting on Information Photonics 2008; *Awaji, Hyogo, Japan*	16-20. Nov 2008	**end. US$ 0**	Yasuhiko Arakawa
PHOTONICS 2008 9TH International Conference on Fiber Optics and Photonics, *New Delhi, India*	14-17 Dec 2008	**end. US$ 1,500**	Ari Friberg
VI International Workshop TECNOLASER 2009 and II Meeting Optics, Life and Heritage; *La Habana, Cuba*	13-16 Apr 2009	**end. US$ 2,000**	Gert von Bally Maria Calvo
4th Asian and Pacific Rim Symposium of Biophotonics (APBP 2009); *Jeju island, Korea*	27-29 May 2009	**end. US$ 1,000**	Min Gu
12th International Conference on Photorefractive Materials, Effects and Devices - Control of Light and Matter; *Bad Honnef, Germany*	11-14 Jun 2009	**cosp. US$ 1,000**	Cornelia Denz
Nanophotonics Down Under 2009: Devices and Applications; *Melbourne, Australia*	21-24 June 2009	**end. US$ 1,000**	Min Gu

Education and Training in Optics and Photonics, ETOP 2009, *St. Asaph, North Wales, UK*	5-7 July 2009	**cosp. US$ 2,000**	John Love
International Conference "Micro- to Nano-Photonics II - ROMOPTO 2009, *Bucharest, Romania*	31 Aug - 3 Sep 2009	**cosp. US$ 1,500**	Valentin Vlad
The Ninth International Conference on Correlation Optics "Correlation Optics'09"; *Chernivtsi, Ukraine*	20-24 Sept 2009	**end. US$ 1,500**	Marla Calvo
		US $ 11,500	

1. Oct 2009 - 30. Sept 2010 (Period 2)

ICO Topical Meeting, *Delphi, Greece*	7-9 Oct 2009	**cosp. US $ 2,000**	Marla Calvo
V Workshop on Lidar Measurements in Latin America, *Buenos Aires, Argentina*	30 Nov-4 Dec 2009	**end. US$ 1,000**	Angel de Frutos
Optics and Lasers in Science and Technology for Sustainable Development, LAM 9 International Workshop and EBASI 7 Conference; *Dakar, Senegal*	11-16 Jan 2010	**cosp. US$ 1,500**	Ahmadou Wague
SPIE Photonics Europe, *Brussels, Belgium*	12-16 April 2010	**cosp. US$ 2,000**	Gert von Bally
7th International Conference on Optics-Photonics Design & Fabrication "ODF 10", *Yokohama, Japan*	19-21 April 2010	**end. US$ 0**	Yasuhiko Arakawa (TC CommChair Japan)
RIAO/Optilas 2010: VII Ibero-American Conference on Optics (RIAO) & Latin-American Meeting on optics, laser and Application (OPTILAS). Lima, Peru.	20-24 Sept 2010	**cosp. US $ 2,000**	Angela Guzman
OWLS 11, 2010, *Quebec, Canada* (in preparation)	28-30 Sept 2010	**cosp. US$ 1,500**	Gert von Bally
		US $ 10,000	

1. Oct 2010 - 30. Sept 2011 (Period 3)

TCM 2010, *Crete, Greece*	17-21 Oct 2010	**end. US $ 1,000**	Gert von Bally
EOS Annual Meeting/ICO Topical Meeting *Paris, France*	26-29 Oct. 2010	**cosp. US$ 2,000**	Maria L. Calvo, Gert von Bally
2nd Mediterranean Photonics Conference, *Eilat Israel*	29 Nov - 2 Dec 2010	**end. US $ 0**	Joseph Shamir
Photonics 2010, International Conference on Fiber Optics and Photonics, *India*	11-15 Dec 2010	**end. US$ 1,500**	Maria Calvo
International Conference on Applications of Optics and Photonics, *Braga Portugal*	3-7 May 2011	**end. US$ 0**	Maria Calvo
Information Photonics, *Ottawa, Canada* (in preparation)	18-20 May 2011	**cosp. US$ 1,500**	Maria Calvo
Panamerican Advanced Studies Institute on Frontiers in Imaging Scence, *Bogota Colombia*	7-17 June 2011	**US $ 1,000**	Roman Castaneda
ETOP 2011, *Tunesia*	8-10 July 2011	**cosp. US$ 2,000**	Maria L. Calvo
1st EOS Topical Meeting on Photonics for Sustainable Development - Focus on the Mediterranean (PSDM 2011), *Tunis Tunesia*	11-13 July 2011	**cosp. US $ 1,000**	Roberta Ramponi
ICO-22, *Puebla Mexico*	15-19 Aug 2011	***cosp. US$ 7,000 (different budget)***	
Conference Correlation Optics 2011, *Chernivtsi, Ukraine*	12-16 Sept 2011	**cosp. US $ 1,000**	Serguey Odoulov
Newrad 2011, *Hawai, USA*	19-23 Sept 2011	**US $ 0**	
		US $ 11,000	

Budget overview:	Distribution Plan	Expenditures
1. Oct. 2008 - 30. Sept. 2011 total: US $ 32,000		
Budget distribution plan:		
1. Oct 2008 - 30. Sept 2009:	US $ 11,000	US $ 11,500
1. Oct 2009 - 30. Sept 2010:	US $ 11,000	US $ 10,000
1. Oct 2010 - 30. Sept 2011:	US $ 10,000	US $ 11,000

- US $ 500

Gert von Bally,
ICO Associate Secretary

REPORT OF THE 21ST CONGRESS OF THE INTERNATIONAL COMMISSION FOR OPTICS

Monday 7 – Thursday 10 July 2008, Sydney Convention & Exhibition Centre

The 21st Congress of the ICO was collocated with the Joint Conference of the Opto-Electronics and Communications Conference and the Australian Conference on Optical Fibre Technology (OECC/ACOFT 2008). These two meetings brought together around 700 delegates from every region of the world to Australia for conferences on all aspects of optics and photonics, areas where Australian research and development has excelled and Australian companies have competed internationally with distinction. The total number of Conference attendees was 664. From them 222 registered specifically to the ICO Congress and 82 opted for the combined registration. Close to half the registrations were received in April 08 when the draft program was released and the Early Bird Deadline was approaching. However a large number of registrations were received in June close to the standard deadline. There were approximately 184 oral presentations and 106 poster presentations at the ICO Congress..The combined event was supported by the International Commission for Optics, Engineers Australia, the Australian Optical Society, the Optical Society of America, the Australian Housing and Urban Research Institute (AHURI). For the exhibition there were 19 exhibitors and 20 sponsors, for a total of$150.300.15 in sponsorship for the exhibition and a surplus earned of $1.464.43.

ORGANISING COMMITTEE

General Chair
John Love, Australian National University, Australia

Organising Committee

Tom Baer, Stanford University (representing the Optical Society of America)
Ken Baldwin, Australian National University, Australia
Gert von Bally, Medical Centre University of Münster, Germany (representing the International Commission for Optics)
Murray Hamilton, University of Adelaide, Australia (representing the Australian Optical Society)
Keith Nugent, University of Melbourne, Australia
Chris Walsh, University of Sydney, Australia (Chair, Organising Committee)

Technical Program Committee

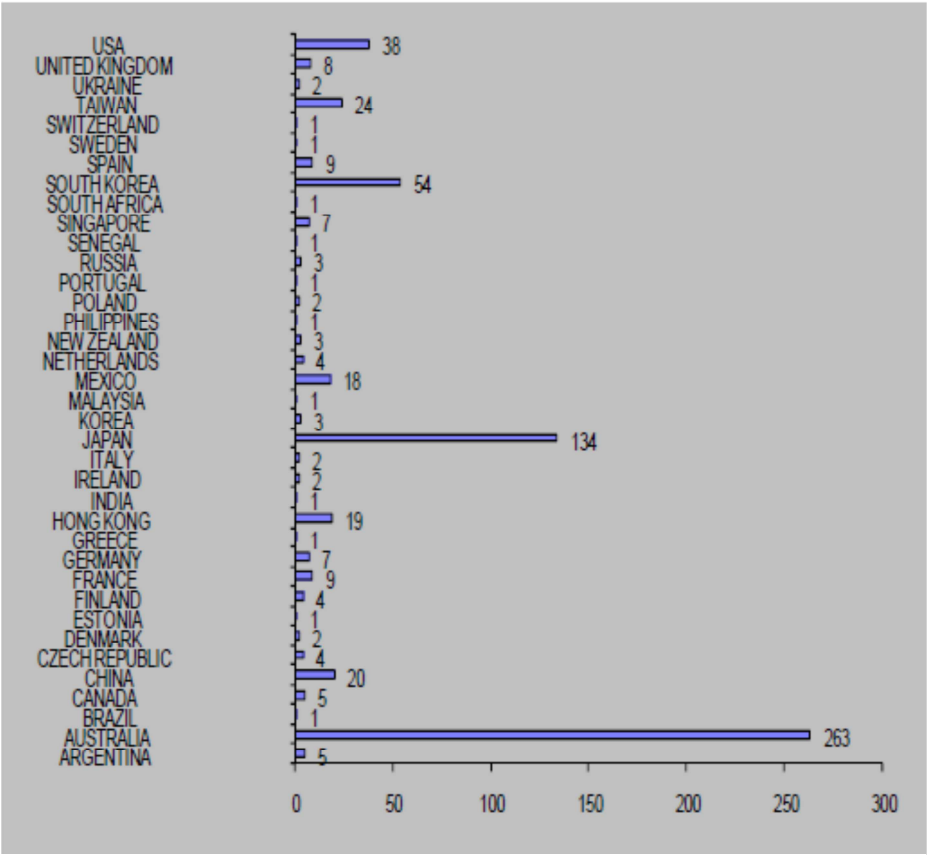
Hans Bachor, Australian National University, Australia
Ken Baldwin, Australian National University, Australia
David Burn, University of Strathclyde, Scotland
Kurt Busch, Universitaet Karlsruhe, Germany
Vladimir Buzek, Institute of Physics, Slovakia
Maria Calvo, Universidad Complutense de Madrid, Spain and Secretary, International Commission for Optics
Stephen Collins, Victoria University, Australia

Lea Delbridge, University of Melbourne, Australia
Ben Eggleton, University of Sydney, Australia
Ari Friberg, Royal Institute of Technology, Sweden and President, International Commission for Optics
Richard Garrett, Australian Nuclear Science and Technology Organisation, Australia
Jean-Jacques Greffet , L'Ecole Centrale Paris, France
Min Gu, Swinburne University of Technology, Australia
Murray Hamilton, University of Adelaide, Australia
Steven Jacques, Oregon Health & Science University, USA
Julian Jones, Heriot-Watt University, Scotland
Deb Kane, Macquarie University, Australia
Yoshimasa Kawata, Shizuoka University, Japan
Satoshi Kawata, Osaka University, Japan
Yuri Kivshar, Australian National University, Australia
Byoungho Lee, Seoul National University, South Korea
Peter Markos, Institute of Physics, Slovak Academy of Sciences, Slovakia
Dennis Matthews, UC Davis, USA
David McClelland, Australian National University, Australia
Ian McNulty, Advanced Photon Source, USA
Tanya Monro, University of Adelaide, Australia
Jesper Munch, University of Adelaide, Australia
Keith Nugent, University of Melbourne, Australia (Chair, Program Committee)
Wolfgang Osten, University of Stuttgart, Germany
Yun-Jiang Rao, University of Electronic Sciences & Technology, China
Ann Roberts, University of Melbourne, Australia
Andrei Rode, Australian National University, Australia
Erich Rohwer, University of Stellenbosch, South Africa
Halina Rubinsztein Dunlop, University of Queensland, Australia
Kazuaki Sakoda National Institute for Materials Science, Japan
David Sampson University of Western Australia, Australia
Colin Sheppard National University of Singapore, Singapore
Costas Soukoulis Ames Laboratory & Iowa State University, USA
Christine Steenkamp University of Stellenbosch, South Africa
Jean Susini European Synchrotron Radiation Facility
Peter Veitch University of Adelaide, Australia
Tony Wilson University of Oxford, UK
Howard Wiseman Griffith University, Australia.

REGISTRATlON

The original budget forecasted a higher number of delegates for the ICO component of the events, however the OECC/ACOFT did receive a higher number of attendance. Even though the anticipated numbers weren't met the overall attendance from different Countries was good

The original budget forecasted a higher number of delegates for the ICO component of the events, however the OECC/ACOFT did receive a higher number of attendance. Even though the anticipated numbers weren't met the overall attendance from different Countries was good.



Regitration by country

SPONSORSHIP

A total of 20 companies pledged support to the joint events. A number of select packages were created to forward through to targeted potential sponsors. The original target amount was $64,000.The organizers were able to secure $88,700.15. This was made up of the following:

EXHIBITION

A trade display was offered in conjunction with the conference, these were located in the Bayside Gallery of the convention centre. Attendance at the exhibition was good; this was assisted by the delegate tea & coffee served in close proximity to the exhibition area. Overall exhibitors were extremely pleased with the quality of people through the exhibition.

Each trade display included two representatives for 2 days tea & coffee, a conference satchel and two tickets to the Welcome Function.

SPONSORSHIP BREAKDOWN

SPONSORSHIP PACKAGE	ORGANISATION	AMOUNT
Principal Sponsor	Sydney University	$15,000.00
Gold Sponsor	CUDOS	$9,500.00
Silver Sponsor	Centre of Expertise in Photonics/DSTO	$8,000.00
Bronze Sponsor	Redfern Optical Components	$5,000.00
	ARC Centre of Excellence for X Ray Science	$5,000.00
	Bandwidth Foundry	$5,000.00
	Edith Cowan University, Comps	$5,000.00
	The National Measurement Institute	$5,000.00
Welcome Reception	DSRD	$4,000.00
Satchel Sponsorship	ANU	$5,000.00
Note Pad & Pen	Rsoft Design Group	$1,000.00
Lanyard/Nametag	NCICTA	$3,500.00
Satchel Insert	RSoft Design Group	$650.00
	Schott AG	$650.00
Visitor Support	ARC Centre of Excellence for X Ray Science	$1,000.00
Custom Packages		
Supporting Sponsor	ACQAO - ARC Centre of Excellence for Quantum-Atom Optics	$3,000.00
Student Prize/Contribution	Optium	$3,000.00
Satchel Insert & Logo promotion	MQ Photonics	$1,000.00
Developing Countries Sponsorship	Univeristy of Southern California	$7,450.15
	TOTAL	**$88,700.15**

The following companies exhibited at the Conference: Optium, Lastek, National Measurement Institute, ARC Centre of Expertise in Photonics, Warsash Scientific Diamond Australia, ACQAO, Edith Cowan University, University of Sydney/CUDOS, Newspec, Lambda Scientific, Engineers Australia ,Redfern Optical Components, Coherent Scientific, Schott,) Southern Photonics, Pritel, Bandwitdh Foundry Pty Ltd

TECHNICAL PROGRAM

The quality of the technical program is the foundation of a good conference. Both Conference Technical Committees are to be commended for dedication, commitment and hard work to creating a successful and dynamic program.

The committees' hard work in putting together the program of speakers was well worth the effort as the program had an overwhelming response and all delegates were very impressed with the range of topics and speakers. The total Abstract Submissions was approx 270

Plenary Speakers

Michael Feld (Massachusetts Institute of Technology) "Spectral Interferometry in biology and Medicine: Past, Present and Future"
Ursula Keller (Swiss Federal Institute of Technology (ETH) Zurich) "Ultrafast lasers: hitting harder, faster and broader"
Martin Wegener (University of Karlsruhe) "Photonic Metamaterials: Optics Starts Walking on Two Feet"
Costas Fotakis (IESL-FORTH and University of Crete) “Micro- and nano processing of materials by ultrafast lasers: From optical to biological and cultural heritage applications”

Susana Marcos (Instituto de Optica, Consejo Superior de Investigaciones Científicas, Madrid) ICO Prize winner 2007 "Using optics to understand vision"
Hideyuki Sotobayashi (Aoyama Gakuin University and National Institute of Information and Communications Technology (NICT), Japan) ICO Prize winner 2006 "All-band photonic transport system"

Concurrent Sessions

There were 5 Concurrent Sessions and two poster sessions covering topics such as:

- Optical Instrumentation
- Biomedical Optics & Biophotonics
- Optical Information Storage & Processing
- Quantum-Atom Optics & Quantum Information
- Photonic Systems & Optical Communication
- Optical Microscopy & Imaging
- Lasers & Applications
- X-ray Optics
- Photonic Crystals & Metamaterials
- Nonlinear Optics
- Optical Materials
- Physical Optics

ICO CONGRESS DINNER

The dinner was held at the WatersEdge and included some shortl speeches from the ICO President and the General Chair of the 2008 Congress. This function was an additional cost to the Congress registration fee ($110 incl GST) and a total of 140 delegates attended. The Congress Dinner was a great networking function enjoyed by all the delegates.

ICO HARBOUR CRUISE

This cruise was late in the afternoon allowing delegates to take in the beautiful sites of Sydney Harbour and watch the sunset. The cruise consisted of a drink on arrival and cheese and biscuits as snacks. : The cost not included in the conference fee was $110 (incl GST).

VENUE

The Conference was held at the Sydney Convention & Exhibition Centre, Bayside. Bayside Level 1 & 2 was utilised for the full conference, with the registration desk, secretariat, speakers preparation, Committee Room located on Level 1. The conference sessions were split over level 1 & 2, ICO sessions were all held on level 1, and OECC/ACOFT was held on level 2, with the joint CLEO session in the plenary room on level

Poster sessions were located on level 2, and available for access at all times. Tea & Coffee was split over 2 levels to cater for the high number of people and to ensure efficient service during breaks.

Directional signage was located around the venue directing delegates, which assisted with the movement of delegates between the start and end of the day.

ACCOMMODATION

With a wide choice of fabulous hotels offered by Sydney the conference chose 6 main hotels to arrange block bookings with in close proximity to the venue.

WEBSITE

Website address: www.iceaustralia.com/ico2008. The web page played a vital role in the following areas:

- Marketing and Promotion of the Event
- Sponsor Recognition
- Online Registration
- Providing up to date Program Information
- Detailed information on the venue, accommodation and location
- Providing up to date social program information
- Online Speaker Management

SUCCESSFUL STRATEGIES & RECOMMENDATIONS:

- Continue to appoint a Professional Conference Management Company
- Consider offering catering for lunch & morning & afternoon tea
- Continue to have tea breaks located in the trade display area
- Consider offering a larger trade display eg. Shell Scheme booths
- Continue to use the conference website as a tool for delegates to use for information prior to the conference, and look at an alternative setup eg. Content Management System
- Continue to offer an Early Bird rate as this encourages cash flow
- Continue to use and follow deadline dates
- Continue to offer a wide variety of accommodation options
- Continue with a key organising committee, arrange for one person to be the chief liaison person with the PCO
- Continue to appoint a Technical Program Chair work solely on the Technical Program and coordinate the liaise with the Technical Program Committee
- Continue to utilise electronic newsletters/postcards/brochures and consider distribution of hard copy registration brochure
- Continue to have a Welcome Reception this was a great way to start the conference.
- Continue to have a Conference/Congress Dinner, keeping speeches and awards to a minimum.
- Encouraging sponsorship of social functions is an excellent way to enhance the evening; the sponsor contributes their own'flair' and their involvement can open up new opportunities for relationships, suppliers, venues and shared experiences.
- Continue offering a call for abstracts approach to the program, as this ensures diversity and breadth of experience.
- Where possible finalise the program a minimum of 60 days prior to the conference/congress to assist in finalising all details relating to the technical program
- Continue to offer comprehensive sponsorship packages at targeted companies, this assisted in confirming the right sponsors for the right components

• Where possible look at all avenues of the conference/congress requirements for venue and program to ensure the correct amount of space and staff are allocated to handle all aspects.
• Continue to offer the poster sessions at a specific time within the program
• Always offer wireless internet connection, being aware of the high usage this industry will use
• Continue to have split registrations and ensure this is carried through onsite, having the 3 different registration desks onsite assisted in registering delegates in a timely fashion
• Continue to have a speakers preparation room as a central point for speakers to load all presentations, this assisted in ensuring speakers had arrived and also allowed for any problems with presentations to be dealt with prior to the presentation starting
• Where AGM's are applicable, try to arrange all A/V and speaker requirements prior to the conference/congress to assist with a smooth running of the event
• Where possible try to keep the abstract/paper submission guidelines the same when co-loacting the conferences/congress'

Report prepared by International Conference & Events (ICE), Australia.

TRIENNIAL REPORT OF THE INTERNATIONAL CONFERENCE ON EDUCATION & TRAINING IN OPTICS & PHOTONICS (ETOP)

The 11th International Conference on Education & Training in Optics & Photonics (ETOP) was held 5-7 July 2009 as a stand-alone meeting at the Technium Optic outside of the small town of St Asaph in North Wales, UK.

The Technium Optic is a publicly funded business incubator located in the relatively large local business park and houses a variety of optics and photonics start-up companies, as well as an auditorium and various meeting rooms. ETOP is held every 2 years and originated in 1988 in the USA since when it has been held in Russia, Hungary, Holland, Mexico, Singapore, France, Canada and the USA (twice).

The 3-day event was overseen by the Conference Chair, Alan Shore, from the University of Bangor, Wales, together with the Deputy Conference Chair, Deb Kane from Macquarie University, Australia. About 75 delegates from 20 countries attended and between them presented 50 papers and posters. Generally speaking the presentations were focused on either strategies for enhancing student interaction, ability and understanding of optics and photonics or the incorporation of technical aspects of existing and new areas of optics and photonics. The whole range of education from kindergarten to graduate coursework was covered, as well as outreach and industrial training. A significant number of presentations were devoted to a range of compact optics and photonics laboratory kits.

One of the more impressive talks was given by Ray Davies from the Photonics Academy of Wales who has successfully encouraged local secondary school students to fabricate quite sophisticated light-based sensory and robotic devices from component modules by emphasizing the functions that these modules can perform, rather than focusing on the underlying theory and components of each module.

Ray Davies demonstrates an optical finger movement sensor

Another highlight was a talk given by Christopher Sansom from Cranfield University who outlined a very specialised industrial masters degree course associated with the multi-university supported UK International Knowledge Centre in Ultra-Precision and Structured Surfaces. Sophisticated machinery at this Centre can produce large mirrors and structured surfaces with a design accuracy of about 1 in 10^8.

One interesting but slightly worrying paper covered students' misconceptions, such as "light travels farther at night than during the day", "a converging lens increases the speed of light", "the bigger the source of light, the smaller the shadow", etc. On the social side of the meeting, the Welsh weather ensured that a barbecue of Welsh lamb patties and pork and leek sausages, accompanied by a small band, performed outside in the rain while delegates sat inside insulated from both the weather and the music. The Conference Dinner consisted of a medieval banquet held in a castle-cum-hotel at Ruthin, complete with medieval costumes, finger eating of food and Welsh singing. The latter included the popular Welsh song "Men of Harlech" that had been drummed into me whilst at school in England!

Conference delegates in medieval costume

Long-Range Advisory Committee (LRAC)

ETOP is supported both organisationally and financially by OSA, IEEE - Photonics Society, SPIE and ICO. The LRAC comprises representatives from each of these 4 organisations together with supporting staff members from the OSA, IEEE and SPIE, and provides advice and recommendations to the member organizations.

The LRAC met on 6 July 2009 at ETOP to discuss a number of agenda items. Recommendations arising from the meeting included

1. The LRAC heard oral presentations from Germany, Mexico and Tunisia for hosting ETOP in 2011 and subsequently agreed to recommend Tunisia as the host organiser;

2. The increasing interest in ETOP and the ever-broadening scope of optics and photonics lead to discussion about a proposal for ETOP to be held annually instead of every 2 years as at present. Under this proposal, ETOP in odd years would continue to be allocated through consideration by the LRAC of proposals from interested countries, while in even years ETOP would be collocated with a major conference organised by one of ICO, OSA, SPIE or IEEE. The latter requirement does not necessarily mean that ETOP will be held in the US in even years.

This proposal was referred to the supporting organisations for consideration, where it did not receive unanimous support and was therefore not adopted.

3. A page should be included in future ETOP meeting programs to explain to delegates the background to ETOP, organisational links, previous locations of ETOP, the ETOP web site, procedure for applying to host ETOP, etc.

4. To help enhance the international standing and academic standard of future ETOP conferences, refereeing of papers should be considered by the Local Organising Committee for each subsequent ETOP.

5. The LRAC should be more closely involved with each LOC to help ensure that future ETOP's conform to a consistent format.

12th ETOP, Tunis, Tunisia

At the time of writing this report, political unrest in Tunisia that occurred during January 2011 cast uncertainty on the scheduled ETOP meeting in Tunis during July 2011. An emergency phone meeting of the LRAC on 3 February 2011 considered several options and decided unanimously to postpone the ETOP meeting until April 2012, in the expectation that political stability will have returned by then. Proposals to host ETOP in 2013 will be considered before then in order to give the successful host organisation sufficient time to organise the 13th ETOP.

Professor John Love
Australian National University
ICO LRAC Representative.

TOPICAL MEETING BOOSTS OPTICS IN GREECE

The ICO Topical Meeting for 2009 – "Emerging Trends and Novel Materials in Photonics" – was held on 7–9 October at the European Cultural Center in Delphi, Greece. It was the first large-scale international optics and photonics conference ever hosted in Greece. With the magnificent Delphic landscape as a backdrop – the Faidriades rocks and olive tree valley overlooking the Corinthian Gulf – more than 280 registered participants from 28 countries conducted an energetic scientific forum on photonics. The participation of high-calibre scientists, postdocs and students provided strong evidence of success for this newborn topical meeting and of its positive impact on the related photonics and materials research communities. The scientific programme of the conference encouraged fruitful exchange of ideas in areas such as advanced photonic materials, nanocomposites, plasmonics, optical sensing, photonic crystal fibres, metamaterials, and quantum and nonlinear optics in active photonic media.

Conference delegates in Kostantinos Karamantis, the amphitheatre at the European cultural centre of Delphi

In one of several special events, the conference hosted the award ceremonies for the 2007 ICO Galileo Galilei Prize, awarded to Oleg V Angelsky, and the 2008 ICO Prize (or the Ernst Abbé medal), awarded to Zeev Zalevsky. The ICO Bureau Meeting was also conducted during the conference, along with an opening presentation on the forthcoming ICO-22 Congress to be held in Puebla, Mexico in 2011.

In the plenary session on the European Research Policy in Photonics, representatives from the EC, the European Science Foundation COST Office, the Photonics21 Technology Platform and the Research Chair in Photonic Network Technology of Canada provided an overview of the field in terms of dynamics, thematic priorities, clustering and market size.

On the last day of the conference the Round Table on Photonics and Nanotechnologies provided discussions of particular interest, exposing new trends and opportunities and providing new grounds for collaboration and interdisciplinary research. In addition, workshops of the COST actions MP0604 and MP0805, and the FP6 ToK NOLIMBA were hosted under the auspices of the main event.

From left: Prof. Emmanuel Paspalakis, and conference chairs SPhoneios Couris, Stavros Pissadakis and Nikolaos Vainos

The Delphi meeting was warmly welcomed by the local community and supported by the Prefecture of Fokida. A rich social programme included Delphi archaeological tours, a traditionally celebrated gala, sightseeing and a reception hosted by the municipality of the town of Amfissa.

The conference proceedings were published by the American Institute of Physics, while special issues of international photonics journals are scheduled for publication.

TOPICAL MEETING ON OPTICS AND ENERGY

Held at EOSAM 2010 at Parc Floral de Paris

The annual ICO Topical Meeting for 2010 on the topic of optics and energy was held as one of the topical meetings of the annual conference of the European Optical Society (EOS). The topical meeting was chaired by Maria L Calvo and Duncan Moore. There were 122 contributing authors. ICO obtained an IUPAP grant for supporting the participation of scientists at the meeting that was awarded by the Academic Committtee mostly to scientists from Africa. EOS agreed to send free copies of the *EOSAM Digest* CD to libraries in countries where optics development requires special support.

The ICO award ceremony for the ICO Prize Awardee 2009, Rajesh Menon, and the two 2009 Galileo Galilei award prizewinners, Marat S Soskin and Dumitru Mihalache, also took place during EOSAM 2010, where they presented their Ernst Abbe and Galileo Galilei award lectures.

Ari T. Friberg (left) and 2009 ICO Prize winner, Rajesh Menon

The annual ICO Bureau Meeting took place at the Institut d'Optique, Palaiseau, where the director-general of the institute, Jean-Louis Martin, and the former ICO secretary-general, Pierre Chavel, gave a splendid welcome to the Bureau members. Chavel made a short presentation on the activities of the institute, and he and his wife Françoise took care of every detail to facilitate the meeting, which took place on a Saturday and in the middle of school holidays and a transportation strike. The Bureau was very pleased to receive four high-quality proposals for hosting ICO-23 in 2014, and analysed them in depth. The Bureau will make a recommendation to the General Assembly that will take place during ICO-22. Another important issue was the possible updating of the assignation of units to the territorial committees. The ICO treasurer, Jim Harrington, is preparing an official proposal to the ICO Bureau that will also be proposed for consideration by the General Assembly.

RIAO-OPTILAS 2010

Held at Pontificia Universidad Catolica del Peru in Lima, Sept. 20-24, 2010

Guillermo Baldwin, Chair of the Conference

RIAO-OPTILAS, one of the most important Iberian American conferences for optics, was held on 20-24 September, at the Pontificia Universidad Catolica del Peru (PUCP) in Lima. The conference, which is held every three years, gathered around 400 attendees from different countries, some of them coming from beyond the Iberian American region. The conference traditionally covers topics which range from optical design to optoelectronics and technological applications, including fundamental as well as applied areas of the optical sciences. A remarkable feature of the present edition was the increased attendance of researchers working in quantum optics, mainly from Peru and Chile, who had been absent in earlier versions of this traditional conference.

The first plenary talk was given by Duncan Moore (University of Rochester, USA) about gradient-index materials, followed by Aristide Dogariu (CREOL, UCF, USA) who talked about variable coherence sensing. The plenary sessions of the following days included James C. Wyant (OSC, Arizona, USA) who presented precision interferometric

measurements in non-ideal environments, and Daniel Malacara (CIO, Mexico) who discussed the design of optical systems with off-axis spherical mirrors. Wolfgang Dultz (Frankfurt, Germany) talked about the transfer of spin angular momentum from photons to birefringent particles, while Ulrik Lund Andersen (Technical University of Denmark) showed how to manipulate continuous variables of light. Halina Rubinzstein (Queensland, Australia) approached the subject of angular momentum of light from the viewpoint of optical tweezers, and Pierre Meystre (Tucson, Arizona) addressed the exciting field of cavity optomechanics. Celebrating 50 years of the laser, Mario Bertolloti (La Sapienza, Rome) revealed the hidden history of the laser and Sune Svanberg (Lund, Sweden) paid homage to the laser from the perspective of its applications in environmental and medical research. Focusing more tightly in cancer diagnosis and therapy, Katarina Svanberg (Lund, Sweden) discussed the application of optical tools in her work as an oncologist. Applications in technology were instead the subject of Mitsuteru Inoue (Toyohashi University of Technology, Japan), who addressed magneto and multiferroic photonics applied to spatial light modulators. In a closing plenary session, Luis Jaime Castillo (PUCP, Peru) presented his archeological findings related to ancient Peruvian cultures.

The peer reviewed proceedings of the conference will be published in *Journal of Physics: Conference Series*, an open-access journal of IOP. The next RIAO/OPTILAS will be held in Portugal in 2013.

Members of the RIAO Council. From left: P. Andres (SEDO) , E. Solarte (RCO, Secretary), E. Rosas (AMO, President), J. L. Paz (CVO), M..F.. Costa (SPOF).

A highlight of the Conference was the official presentation of the Council of the Iberian American Network in Optics RIAO. The constitution of the Network was reported by A. Guzman to the ICO General Assembly in 2008 in Sidney. By then the founding organizations of the RIAO had approved its bylaws. In Lima the members of the RIAO Council held a

ceremony chaired by the RIAO Council President, Eric Rosas (President of the Mexican Academy of Optics). A series of speeches welcoming the initiative were given by Maria L. Calvo (ICO President), James Wyant (OSA President), and Katherina Svanberg (SPIE President). Angela Guzman (ICO Secretary), who promoted the creation of the RIAO during her period as ICO VP 2005-2008, presented the history of the Iberian American organization, whose members are the Mexican Academy of Optics, the Colombian Network on Optics, the Spanish Optical Society, the Cuban Optical Committee, the Venezuelan Optical Committee and the recently created Portuguese Society for Research and Development of Optics and Photonics

OPTICS AND PHOTONICS IN PORTUGAL

LARGE ATTENDANCE TO PORTUGAL'S FIRST INTERNATIONAL CONFERENCE

Manuel Filipe Costa, Chair of the confernece.

The International Conference on Optics and Photonics AOP2011 run very successfully in an exciting friendly and rewarding way. 257 participants openly shared ideas and experiences discussing the remarkable and exciting recent developments in Optics and Photonics and preparing new development paths and cooperation projects. The conference was organized May 3 to 7, 2011, at the University of Minho and at the Melia Braga Hotel & Spa in Braga, Portugal. It has been the first major international organization of the Portuguese Society for Research and Development of Optics and Photonics, SPOF- Sociedade Portuguesa para a Investigação e Desenvolvimento em Óptica e Fotónica (www.optica.pt, contact@spidof.pt). The Portuguese Optics and Photonics Society was established in November 2009 reflecting the development of the scientific and technological research in Optics and Photonics in Portugal over last decades, and our main goal of promoting the development of Optics and Photonics in general and particularly in Portugal. Coming from all Portuguese continental and atlantic autonomous regions, SPOF counts with an increasing membership of over fifty regular members and several dozen student members working in almost all fields of pure and applied research both at the university and research institutions but also in the industry services and education.

The conference was organized to foster the establishment of the widest range of cooperation projects and relationships with colleagues and institutions from all around the world while increasing the external visibility of Portugal' optics and photonics research.

The success of the conference was only possible with the commitment of the vast majority of Portuguese Optics and Photonics scientists and the endorsement support and active participation of the leadership of the most important international scientific Optics societies – ICO, SPIE, OSA, EOS, Photonics'21, RIAO and SECPhO –, several nationalsocieties committees and boards – SEDOPTICA, AMO, CTOM, STO, OPSS, CVO, APLO, SPF and FCT –, and contribution of all of the over 460 authors and co-authors, from 47 countries of the five continents.

Opening session. From left: K. Svanberg, M.F. Costa, V. Texeira, M. L. Calvo and B. Caenegem

Thirty-eight invited lectures from world leading scientists, including 9 plenary lectures, gave an excellent overview of the state of the art in optics and photonics research across the world pointing out the future development perspectives. From the 256 works accepted, in all fields of optics and photonics, 237 (103 posters and 134 oral) were effectively presented. Nearly two hundred full papers were uploaded into MySPIE system to be published, after peer-reviewing, by SPIE in an ISI/SCI indexed proceedings book. Almost 40% of the works presented at the conference were originated in Portugal giving a good and the widest representation of the research being made these days in Portuguese research institutions. Remarkable was also Spain' representation with nearly 20% of the conference participants.

The conference counted with 257 effective participants (plus 85 undergraduate students in May 3 and May 5 sessions on vision sciences and optometry). Although ¾ of the participants came from Europe, Asia and Latin America had also important representations. Scientists from nine Latin-American countries represented roughly 10% of the conference participants. The Ibero-American Optics Network (RIAO) organized a special session on cooperation in Optics and Photonics in the Iberia/Latin America region calling for the commitment of all in the development of Optics in our region. SecPho, the Southern Europe Cluster on Photonics, presented the experience of Iberian optics companies and development perspectives. As well the European Commission through its unit G5 "Photonics" expressed its support to the conference and its commitment to the development of the research in photonics in Europe with a special presentation on 'EU funded photonics research'. One third of all participants were students, a good percentage of which came from developing countries. Roughly 50% of the Portuguese participants were PhD and master students illustrating the vitality and growth potential of Portugal' research in Optics and Photonics. SPIE awarded five prizes to the best student works.

Participants in AOP 2011. In the front row four of the five women plenary lecturers, Maria L. Calvo (ICO President), Anna Consortini (President ICO), Katherina Svanberg (SPIE President), Maria J. Yzuel (Past President SPIE) in between Eric Rosas, the President of the RIAO, to the left and Manuel Filipe Costa, the Chair of the conference, to the right.

The participation of women optics scientists is also to note both in what concerns the quality of the works presented and the number of participants rising up to nearly one third of the total. Positive is also the fact that in what concerned students the percentage of female raised to 40%.

The importance of women in optics has being long time recognized by the community. The conference' first plenary speakers were five of the most distinguished optics lady scientists including former and current ICO, SPIE and OSA presidents.

SPOF is member of the European Optics Society and founding member of RIAO, the Ibero-American Optics Network and is establishing close relationships with other societies around the world. Next year we will organize an International Summer School and in September 2013 we will host the 8th Ibero-American Optics Meeting (RIAO/OPTILAS). In the spring 2014 the next AOP conference will be organized and we are looking forward to welcome you all in Portugal!

Manuel Filipe Costa
President
Portuguese Society for Research and Development of Optics and Photonics

INFORMATION PHOTONICS 2011

Held in Ottawa, Canada, 18-20 May 2011

Evolved from the ICO topical meetings on Information Photonics, the IP 2011 conference presented full coverage of advancements in the generation, transportation, processing and detection of information using photonics technology. Plenary sessions were scheduled at the start of each day of the conference featuring highly respected leaders in the field. The conference opening plenary speaker was John Hall, Nobel Prize in Physics 2005, with the topic “Pushing the fundamental limits in low phase noise lasers and precision physical measurement”.

The conference was organized in a total of eleven technical topical sessions: Si photonics and nanophotonics, Photonics for sensing, Nonlinear photonics and plasmonics, Photonic integration, Advanced optical communications, Imaging and optical tomography, Quantum information and computing, Waveguide optics modeling, Holographic materials, devices, and applications, Photonics for space applications, Information photonics technology innovation and commercialization. As part of the Ottawa Photonics Week, there was held an exhibition for photonics companies on May 18. Ottawa is a large multicultural city with great tradition for organization of scientific and technological events.

The IP 2011 was held at the Ottawa Convention Center. The program was conformed to the order of 400 authors distributed in all the mentioned topical sessions. The Co-Chairs of the meeting were Sylvain Charbonneau, Director of the National Research Council of Canada and Kexing Liu from Eco Vu. K. Liu was as well representing IEEE Photonics Society. The conference was supported by ICO, CIPI-Mentoring the Canadian Photonics Industry, CMC Microsystems, INRS University, McMaster University MESA+Institute for nanotechnology, NRC-Canadian Photonics Fabrication Centre, NRC-IMS, OCRI, Ottawa Centre for Research and Innovation and Symbol Test Systems INC. ICO offered three awards to the best three poster or oral students presentations awarded to: Katarzyna Lawniczuk, "AWG-based multiwavelength lasers fabricated in multi-project wafer run" (poster presentation) from Warsaw University, Poland. Wending Zhang, "Cascade all-fiber acousto-optic tunable driven by a cuneal acoustic transducer" (poster presentation) from Applied Physics School, TEDA College, Nankai University, China. Carlos Alonso-Ramos, "Design of an optimized grating coupler for thick SOI rib waveguides" (oral presentation) from University of Malaga, Spain. A grant of 500 USD was offered to each one of the three awardees.

As a brief historic perspective of the OiC/IP Steering Committee, this SC was formed by ICO and in 1991 joined OSA. Later in 1992 joined SPIE and EOS, respectively. In 2003 Maria Yzuel was designated member of the SC representing ICO, by R. Dändliker, ICO President (term 2003-2005). In the 2003-2005 terms she chaired the OiC 2003 held in USA and organized by OSA. She wrote an interesting article in: http://www.ico-optics.org/ico_oct03.html#topical. Then, in forthcoming years the involvement of OSA and other IS decay exponentially in activities and proposals. The last OiC meeting took place in April 2004 in Engelberg, Switzerland, with Jürgen Jahns as Chair and as an EOS Topical meeting: http://www.ico-optics.org/ico_oct04.html#EOS. Subsequently, the first Information Photonics meeting took place in 2005 in USA. After 2005 the IS preferred to work under various specific events and then in 2006 the ICO Topical Meeting on Information Photonics was held in Saint Petersburg, Russia, as an ICO initiative supported by the ITMO and the ICO Russian Territorial Committee. The meeting was co-chaired by M. L. Calvo and Alexander Pavlov. In that meeting there took place an informal meeting and in which it was decided to pursue with the periodical event. Then, it was tacitly assumed that ICO needed to follow up with the SC and future events. The IP 2008 was organized by Jun Tanida in Hyogo, Japan. Part of the history of the OiC/IP Steering Committee can be found in: http://www.ico-optics.org/ocsteer.html as prepared by Pierre Chavel. He was representing ICO during the period (2000-2002), when he was ICO Secretary General. There are currently bids open for the forthcoming IP 2013 with various interesting proposals that will materialized in the near future activities.

More information on Information Photonics 2011 can be found in: http://www.ip2011.org/

Pavel Cheben, IP 2011 Program Chair
Maria L. Calvo, ICO President
Chair of the IP 2011 International Committee

THE ICTP WINTER COLLEGE (2009-2011)

After more than 15 years of collaboration with ICTP and Professor Gallieno Denardo, the ICO continued its involvement on ICTP activities collaborating with the ICO Winter College, event where ICO holds and annual Award Ceremony for the ICO-ICTP Galieno Denardo Prize Awardee, and a reception for the participants. After the passing away of Prof. Galieno Denardo, Prof. Joseph Niemela took the responsibility for the activities in Optics at ICTP and has been the local organizer of the Winter College since 2009. Dr. M. Danailov, the director of the Laser laboratory at Elettra has also acted as local organizer of the 2010 and 2011 Colleges. In 2010, after the retirement of Dr. Minella Alarcon from UNESCO, Prof. Joseph Niemela was also put in charge UNESCO's Active Learning on Optics and Photonics (ALOP) Program that she had lead during the last decade. The Winter College is preceded by an ICTP Preparatory School whose purpose is to provide basic elements of theoretical optics relevant to the College Lectures, enabling the students to be better prepared for the College.

The ICTP Winter College 2009 on Optics in Environmental Science.

Participants in the Winter College on Optics in Environmental Science (2009). Courtesy of ICTP.

The directors were A. Consortini, R.P. Singh, S. Svanberg. The aim of the College was to expose the participants to the fundaments and applications of optical techniques like multi-spectral imaging, remote sensing and Lidars to the diagnostics of the environment, including atmospheric monitoring and the assessment of agricultural and natural hazards. The preparatory winter school included hands-on activities at the Microprocessor Lab in the evenings.

The 2010 Winter College on Optics and Energy

Participants in the Winter College on Optics and Energy (2010). Courtesy of ICTP.

The directors were V. Lakshminarayanan and G. Lanzani. The Winter College covered a broad range of topics related to the applications of optics and photonics for energy production

and saving, including luminescent solar collectors and photovoltaic systems.

Part of the Winter College was devoted to important recent physics aspects involved in solar energy conversion like the optical properties of nanomaterials and photonic structures for light harvesting, and their applications. The topic of the Winter College was particularly timely since ICTP is creating a multidisciplinary laboratory and a programme in photovoltaics in conjunction with SISSA.

2011 Winter College on Optics in Imaging Science

Participants in the Winter College on Optics in Imaging Science (2011)
Courtesy of ICTP.

Optical imaging science has seen enormous advances during the past two decades. Nonlinear (e.g. two-photon) methods are yielding resolutions in microscopy that are well beyond the normal diffraction limit. Digital holographic microscopy, facilitated by the availability of inexpensive digital cameras, is promoting development of novel techniques in the imaging of biological specimens. The mobile phone industry is funding research on amazing "computational" imaging techniques that rely on an array of tiny cameras to perform the function of a much larger single camera. Earth-based telescopes are producing images comparable to those obtained by the Hubble telescope because of new methods for imaging through atmospheric turbulence.

The 2011 Winter College on Optics brought together a group of outstanding researchers who lectured on these and other important areas of development in imaging science. Specific tpics were: new developments in ultra-high resolution microscopy; 3D-imaging sensors, methods, measurements, and physicsl limitations; imaging and numerical modeling, analysis and processing; recent developments in the use of diffractive optical elements in imaging systems; computational imaging: a new paradigm in imaging; combining pre- and post-detection processing to improve imaging system performance; imaging thoruhg turbulence, lucky imaging, aperture masking, Fourirer telescopy; adaptive components in imaging systems.

The directors were William T. Rhodes, J.Ojeda-Castañeda, and Gianluca Valentini. There were over 300 applications, and the National Academy of Sciences on behalf of USAC/ICO paid for three students and two lecturers from the US to participate in the college. The Winter College had the honor of having three ICO Prize winners, Susana Marcos, Zeev Zalevski and Menon Rajesh as lecturers.

TSOSA: TRIESTE SYSTEM IN OPTICAL SCIENCES AND APPLICATIONS ADVISORY GROUP

TERMS OF REFERENCE

Terms of reference for the establishment of a body to advise on the coordination of activities in Optics and Photonics related to the Trieste System. Working name: TSOSA Advisory Group (Trieste System Optical Sciences and Applications Advisory Group).

The TSOSA Advisory Group is established with the purpose to offer advice on the development and coordination of activities on Optics and Photonics carried out or planned by the Trieste System.

It is initially established by the following Organizations:

ICO, OSA, SPIE, OWLS, IAEA, UNESCO and Institutions of the Trieste System i.e. ICTP, ICS, TWAS, ICGEB, Elettra Synchrotron Light Facility and the Laser laboratory at Elettra.

Participation of other Organizations and Institutions is open and welcome.

The TSOSA Advisory group is assumed to be aware of the activities and programmes of its members that promote the advancement of Optics and Photonics for the benefit of Developing Countries and that are related to the Trieste System programmes. Developing Countries are defined as per the U.N. rules.

The mandate of the TSOSA Advisory Group is as follows.

1. To stimulate the consistency of the activities of the member Organizations so as to maximize the outcome.
2. Suggest new activities and topics for the Workshops, Courses, Conferences held by the Trieste System.
3. Make sure that Optics and Photonics activities of the Trieste System are adequately publicized by the organizing bodies of the TSOSA Advisory Group including the activities held at ICTP and at the ICTP Affiliated Centres
4. To propose new schemes that can improve the activities on Optics and Photonics of the Trieste System
5. To stimulate nominations from Developing Countries for fellowships, grants and awards of the respective Societies and Organizations keeping their full autonomy of the final decisions or selections.
6. Issue an annual progress report to its member organization governing bodies.

Each member organization, including each member body of the Trieste System, will appoint one representative in the body, with a specified term of office, and may appoint a substitute in addition

The TSOSA Advisory Group has a chairperson, elected annually by the members at its meeting. It meets annually in Trieste during the Winter College on Optics and otherwise operates by email. The ICTP provides the secretariat for the TSOSA Advisory Group. The chairperson may invite individuals to attend meetings in a non-voting capacity as appropriate.

Note: *During the period 2009-2011, the Chair of TSOSA has been the ICO Secretary General, Angela M. Guzmán. She will also chair the TSOSA Meeting 2012. The scribe of the meetings in 2010 and 2011 was Anne Gatti (ICTP). The minutes of the meetings are prepared by the ICO Secretariat.*

MINUTES OF THE 2009 TSOSA MEETING

February 10, 2009, ICTP, Miramare, Trieste, Italy

List of participants

E. Arthurs (SPIE), T. M. Baer (OSA President), K. Bailey-Mathae (Director ISO Board, NAS), Z. Ben Lakhdar (ALOP and Optical Society of Tunisia), M. Bertolotti (EOS/SIOF), M. L. Calvo (ICO President), A. Consortini (SIOF), M. Danailov (Elettra Synchrotron Trieste), A. Friberg (ICO Past President), A.M. Guzmán (TSOSA, Chair), A.M. Johnson (OSA), V. Lakshminarayanan (ALOP), J. J. Niemela (ICTP, Chair), G. Raitieri (INFN Trieste), R. Ramponi (EOS), K.R. Sreenivasan (ICTP Director), G. Von Bally (OWLS), A. Wagué (LAM), K. Williams (LEOS), M.J. Yzuel (SPIE President).

Apologies for absence have been received from P. Chavel and Minella Alarcon (UNESCO).

ICTP's Welcome to the participants

J. J. Niemela welcomed all attendees and after introductions the floor was given to Prof. K.R. Sreenivasan, ICTP's Director, who began by thanking all participants for their attendance and all international organizations represented in the meeting for their support to ICTP's activities in optics. He reaffirmed his continued support to the optics program at ICTP while he will remain in his position and emphasized that the strong support given by of all international organizations to the program will provide for its long term endurance even under the lead of a new ICTP director (which could be in place within 6-12 months).

He remarked that steps were being taken to formalize the laser lab within Elettra which would demonstrate that Elettra has a scientific interest in the lab and this would further strengthen it. He mentioned that while the total number of ICTP Associates had gone down somewhat in the past year, this was not true of optics and in fact ICTP could even increase its numbers. Currently there are between 7 and 10 associates in optics.

Another important partner is the Central European Initiative (CEI) Science and Technology Network. With CEI, the ICTP has fostered an agreement with Romania to act as a satellite institution for research on non-linear optics and serve the research communities of the nearby

Eastern European countries not already part of the EU. Prof. V. Vlad, a former senior ICTP Associate, has been a key agent for this agreement.

The Italian government support for ICTP is becoming less flexible, but part of it has been destined to laser activities in Africa. The TSOSA Committee could advise ICTP on to how to use this support in a sensible way, in order to have a non isolated and coherent action in Africa. Documents will be prepared for the Italian Ministers of Education and foreign affairs, specifying the number of students that will be benefited by this initiative. ICTP would like to boost the number of African students in all of its programs including optics. While it strives for both excellence and diversity of the participants in its activities, this balance is usually difficult to achieve. He also mentioned that the ICTP focuses primarily on graduate education and research activities, although it recognizes the great need for reform and strengthening of high school and undergraduate level education. The ICTP participates in some activities related to undergraduate education, but this is a vast area beyond the scope of the institution.

Finally, he emphasized the need for some activities in Africa to grow to higher levels of excellence, and not be always constrained to the level of the known available funds. For this proposals should be developed having specific goals for a five year period which will challenge them towards their achievement. He expects advice from this committee in this regard.

Opening

A.M. Guzmán opened the meeting, stated her role as elected Chair of TSOSA, and thanked the participants for their presence, especially to Prof. K.R. Sreenivasan for his welcoming remarks and for hosting the meeting. The Agenda was reviewed, and two items were added: (i) a report of M. Yzuel about UNESCO's Workshop on Active Learning on Optics and Photonics (ALOP), to be given after K. Williams' intervention, and (ii) A. Wagué's report on LAM activities to be given before opening the session to other business. The modified agenda was approved. M.L.Calvo and J. Niemela will act as scribes for the Meeting.

Briefing on 2008 activities

]. Niemela reports that the Winter College 2008, directed by Mario Bertolotti, Martina Havenith and Oscar Martínez, was attended by 103 students, many of them from the biological sciences. The preparatory school in 2008 intended to give some biological background to physics students and some background on electromagnetism to biology students. This formula was not deemed to be successful, since one of the two groups was overqualified for half of the school. The decision was taken in subsequent years to limit the number of participants to those whose overall background was weak and to concentrate on mathematical methods, and not use it to provide a general introduction to College topics which should be contained within the College. The experience from the present year showed that this was a correct action. The preparatory school in 2008 was attended by 63 students, and in 2009 by 35. The school is mainly directed by Prof. Miguel Alonso (Rochester), who has been an instructor in it since its inception, and Dr. Imrana Ashraf Zahid from Pakistan.

The number of participants per country was read.

Comments: Although SPIE advertised the activity in China, there were no applicants from China. K.R. Sreenivasan remarks that other activities at ICTP have regular participation from

China. Condensed matter and high energy have well established effective mechanisms for getting to the people and so optics may need to update its own mailing list to attract these participants.

Feedback on the impact of ICTP's activities in optics:

Concerning the success of the Preparatory school in 2009, it was agreed to follow in the future the plan of limiting it to mathematical methods in optics as well as some basic EM together with extensive exercise sessions. Otherwise introduction to new material outside of optics should be contained with the College itself.

A Wagué remarks that ICTP is very effective in Africa. Three students from Senegal that participated in the STEP program have become professors at the Universities. ICTP has also created affiliated centers in Ghana and Cameroon. The large impact of ICTP on building research capacities in Africa is clear.

K.R.Sreenivasan mentions that following the TSOSA model, ICTP has built international advisory groups on plasma and medical physics and plans to extend it to most of its activities.

Specific Suggestions from the board:

1. Ask the students how they knew about the activity.
2. Ask for feedback from the participants about the impact of the Winter College and the preparatory school.
3. Try to follow the activities of the participants once back in their home institutions to establish the impact of their attendance to ICTP's Winter College. Look for a mechanism to measure this impact. For example recording how many new activities are built and the consequences of ICTP's support on the advancement of young people careers.
4. Encourage the participants to give feedback about their association with ICTP, and how it has helped them to contribute to the development of optics in their own countries.
5. Advertise the ICTP Open Access Archive for e-Prints, http://eprints.ictp.it, which allows scientists from anywhere to post on-line, at no cost, their scientific work and scientific CV in electronic format.

ICTP's vision: K.R. Sreenivasan states that ICTP has been very successful supporting individuals, but should be more ambitious. ICTP and TSOSA should ask themselves how ICTP can be instrumental toward the evolution of activities in optics to a higher level; ask themselves if we can have in optics something comparable to the best activities around the world. Each year our expectations should be higher, and point towards making progress. In many countries there is the need of creating structures and groups. He wants the research activities in Africa to go to the higher level, and do not remain stationary. To the fact that getting financial support is very difficult Sreenivasan answers that researchers should envision what they want to achieve five years from now, establish what resources they have and what resources are going to be needed. Goals have to be clearly established. A proposal should be written in a way that it sells its ideas well and encourages financial support. It was mentioned that there is a need for world class centers of excellence. The example was brought up of the German government's intervention to provide support for world class science in developing countries Also Italy has put some money into targeted areas of science and technology through the ICTP, and it is noted that next year the

G8 chair will be Italy. Already ICTP has had the commissioner of the African Union here asking what can be done.

K.R. Sreenivasan asks TSOSA help to make ICTP's activities in optics to fit in a bigger frame. ICTP expects to have four or five institutes in the African continent supporting activities with which ICTP is familiar including optics. There is however the need of knowing how to write good proposals. It is suggested that the selection process of the participants in the Winter College should utilize such institutes whenever possible.

K.R. Sreenivasan indicates that ICTP has also targeted activities, where groups of 10 people are brought to ICTP to work intensively on a research topic and go back to work together in the South. This model has worked very well with Pakistan and could be implemented to enhance activities in a specific place. This could be a new additional model of operation for optics and with time this procedure would result on the building of a new laboratory or research group at the targeted places.

Finally it was pointed out that optics and biomedical optics are areas of research that need the fewest resources and can however address very serious local problems. Research activities that target disease are easy to sell, the problem being the need of multidisciplinary work.

Laboratory for Lasers and Optical Fibers (LFO) Report:

M. Danailov describes the different capabilities available to STEP students at Elettra, the FEL, high energy UV system, high-energy optical parametric amplifier, broad tuning range UV sources and femtosecond laser pulses. A detailed report has been included in the booklet prepared for the TSOSA Meeting. The STEP program in 2008 had six students, some of them working on white light generation. Three students finished their work and another already graduated. In 2009 there will be four students. OSA's support for the visit of the student supervisors has been very helpful. The FEL project meant the lab was enhanced with advanced equipment which was appreciated by all students. Even so, sometimes it is difficult to match the thesis topics with the available equipment, and the IAEA sets its own rules concerning the amount of time available for training.

Quantum Cascade Laser project : G. Raiteri reports that the experimental set up is at the TUM in Munich. Tests of QCL pulsed sources are under way. At a second stage a resonant Fabry-Perot cavity will be built to couple to the lasers and to study the spatial distribution of the radiation emitted by a DFB-QCL source. In the future a mode locked system will be developed.

Up to now only two persons have been involved, A Vacchi and G. Ratieri. The activity began in December 2008. The goal is to build up a group and bring the experiment to the ICTP/INFN laboratory in Trieste. The transfer of the experiment to the ICTP/INFN laboratory is scheduled for the beginning of March or the end of February, once a decision about the correct location at INFN is taken. Between March and the next meeting there should be an effort to involve STEP students and associates. M. Danai1ov has already identified a STEP student to work in the laboratory. The Associate scheme will also be used in this context.

It is brought up that the overall cost of the equipment could make it prohibitive if it were to be replicated in developing countries. It was pointed out by a number of members that this could in fact be done more cheaply, but even if the experiment is difficult to replicate, the

students will acquire valuable knowledge and experience. In this way, ICTP and TSOSA should aim to the future and raise the threshold every year. Technology of comparable quality and sophistication should be available in some developing countries in the future and in the meantime increasing the level of sophistication, as pointed out in the introductory remarks by Prof. Sreenivasan, should be our goal.

Others remark that there are several intermediate (and less expensive) goals like the development of other lasers at different frequencies and applications in photothermal spectroscopy. Since QCLs, which are still under development, will have many applications in diverse areas such as medical diagnosis and environmental monitoring, the prices should drop in the future.

Initiatives of supporting international organizations

USAC/ICO Committee: K. Bailey-Mathae from the National Academy of Sciences of USA reports on the activities of the US Advisory Committee for the International Commission for Optics (USAC/ICO), whose annual budget is provided by the sponsoring societies (IEEE/LEOS, OSA and SPIE) and by the national Science Foundation through a grant to the national Academies. Currently USAC/ICO supports two US facilitators to attend two ALOP Workshops per year, it has supported this year and in the past US lecturers for the Winter College, and would like to encourage the involvement of US students in the Winter College, by giving support for the participation of 2-4 students from USA. K.R. Sreenivasan comments that such participation will help USA students to widen their vision about the world and what is there outside the US. This is in line with ICTP's policy of mixing students from developed (cost free to ICTP) and developing countries in its activities

ICSU grant: M.L. Calvo has prepared an application for a 30000 Euros Grant for ICSU support to the Winter College, mainly oriented to young scientist and women in developing countries. The grant does not support travel expenses. A. Friberg states that no single union can apply without other union's support, since applications must be multidisciplinary. ICO can act only as a supporting applicant, and requires an ICSU union to submit the application. K. Bailey-Mathae recommends submitting the proposal through the IMU (Math union). IMU has shown interest on the preparatory school since it usually involves mathematical methods for optics. K. R. Sreenivasan mentions ICTP's close links to the ICSU C13 Committee, as well as strong collaboration with the IMU. He thinks that IMU will be willing to present the application and thanks M.L. Calvo for her initiative.

SPIE: M. Yzuel makes a global presentation on SPIE activities and programs in favor of developing countries and emphasizes SPIE support to ICTP's activities on optics. SPIE helps support the Winter College with a $5K grant, as well as helps identifying the program, subjects and directors for the College. SPIE promotes ICTP's Winter College to SPIE members and students and posts the event in the SPIE calendar. SPIE also offers free access to the SPIE Digital library during the event. SPIE is supporting the establishment of an anchor optics research program at ICTP with a grant of $30K per year for a period of three years, and establishing free online access to its publications for development countries. SPIE will open a free access electronic journal and publishes a calendar on Women in Optics. It provides free education posters and DVDs as well as access to journals for developing countries.

OSA: T.M. Baer states that OSA and ICTP share many values, including striving for excellence. OSA is aware of the importance of access to early education opportunities. OSA

student chapters are extremely active to the point that they are currently organizing their own meetings. The OSA International Council supports Meetings and travel lecturers. OSA also offers Prices & Grant activities for students. Through the OSA Foundation, OSA provides optics education and resources to underserved population. OSA has increased its support to the Winter College from $5K to $10K. OSA has also provided 3 copies of GLAD software in support to ICTP's satellite institutions.OSA is also ready to collaborate with ICTP in the organization of the Laser Fest 2010.

K.R. Sreenivasan comments about the APS and EPS programs oriented to increase membership to the societies through reduced membership fees for developing countries. Although OSA and SPIE have already reduced fees for developing countries, he would like to explore possibilities of agreements with ICTP to ease further the payment of discounted fees.

IEEE/LEOS: K. Williams expresses his enthusiasm for the activities going on at ICTP, and gives thanks for the opportunity of getting acquainted with the programs and goals pursued. LEOS is participating in a TSOSA Meeting for the first time and will explore ways to help support those activities. He expects to come back with ideas soon.

SPIE Visit to UNESCO: M. Yzuel reports on the UNESCO's Workshop for Active Learning on Optics an Photonics (ALOP). The Workshop is based on new educational methodology pioneered by David Sokoloff, University of Oregon, and current chair of the American Association of Physics Teachers. The method provides hands on experience with local low cost resources. Key ingredient of the method is the measurement of the learning outcome from the activity. ALOP director, Minella Alarcon will retire soon and it is not clear who will be her replacement. Physics is a weak area in UNESCO at Paris, most probably since ICTP leads the Physics activities for UNESCO. ALOP has already a second generation core group of facilitators TSOSA members express hope that ALOP activities be continued after Minella's replacement.

Topics for future Winter Colleges and suggestions of possible College directors.

After reviewing topics that have been suggested in previous TSOSA Meetings, the proposal by M. Yzuel, complemented by M. Danailov on Optics and Energy was accepted. The list of topics to be included will be reviewed by ICTP and the Winter College directors. M. Bertolotti suggests Francesco Miguelotti, expert on organic light emitting diodes, from Rome to act as the Italian director. R. Ramponi suggests Prof. Guglielmo Lanzani, from the Politecnico di Milano, expert in organic solar cells, working on development of devices and author of a recent publication in Nature. G. Lanzani has been contacted in advance and will accept if his name is recommended. V. Lakshminarayanan volunteers to be considered as one of the directors.

The scope of a Winter College on Optics and Energy could be very broad and there is the need of focusing on some topics. Directors should be chosen accordingly and preferably because of being well recognized researchers on the topics.

TSOSA agrees on recommending G. Lanzani as the Italian director for the next Winter College and on creating a committee integrated by G. Lanzani, M. Danailov and V. Lakshminarayanan to propose other possible directors, whose names will be sent to the TSOSA Committee for further advice.

A. Consortini suggests organizing the Winter College later in February to avoid overlap with the OSA leadership meeting.

The following items on the Agenda were not discussed during the Meeting:

1) UNESCO's support for ICTP initiatives on Optics
2) Proposal for a Winter College preparatory school in Morocco.
3) Suggestions for Trieste activities in support of Laser fest in 2010.
4) The Gallieno Denardo ICO-ICTP Prize awardees.
5) A. Wagué's report on activities on Africa
6) Other business.

A Guzmán suggests discussing the proposal for a preparatory school in the Meeting of the ICO Education Committee, that will be attended by several TSOSA members and for whose agenda the item is more appropriate. A. Wagué will give a presentation in the afternoon on optics activities in Africa, and will be willing to send additional information to TSOSA members under request.

According to TSOSA's mandate, TSOSA is entitled to operate by email, and its members will be contacted by the TSOSA chair for further advice concerning the items that remained untouched.

A.Guzmán thanked all the attendees for their participation.
Meeting adjourned at 1:40 PM.
Trieste, February 10th 2009

Document prepared by ICO Secretariat
First draft, February 18th 2009
Revised by Joe Niemela March 3rd, 2009
Revised by Maria L Calvo, August 2009
Final version Apporved in February 2010

MINUTES OF THE 2010 TSOSA MEETING

Tuesday, February 16, 2010

PART I

Participants:

Minella Alarcon (UNESCO)
Mario Bertolotti (EOS)
Maria Calvo (ICO)
Anna Consortini (SIOF)
Miltcho Danailov (Synchrotron, Trieste)
Angela Guzman (ICO)
Anthony Johnson (OSA)
Zohra Ben Lakhdar
Kathie Bailey-Mathae (NAS)
Joseph Niemela (ICTP)
Fernando Quevedo (ICTP)
Roberta Ramponi (EOS)
Andrea Vacchi (INFN)
Gert von Bally (OWLS)
Ahmadou Wague (LAM Network)
Kevin Williams (IEEE Photonics Society)
Maria Yzuel (SPIE)
Krisinda Plenkovich (SPIE)
V. Lakshminarayanan (ALOP)

1. Introduction of board members and welcoming remarks by Professor Fernando Quevedo, Director of ICTP

The board members briefly introduced themselves. Professor Quevedo thanked the board for having invited him. He was very happy to be present and was looking forward to learning about the work of TSOSA.

2. Approval of the minutes of the previous TSOSA meeting which was held in February 2009

   The minutes were approved with minor corrections.

3. Initiatives of supporting international organisations

The International Society for Optics and Photonics (SPIE) – Maria Yzuel

Maria Yzuel informed that SPIE was founded in 1955, and that she had been representing SPIE at TSOSA meetings for 8 years. SPIE is an international society advancing light-based research. It is a non-profit society and one of its main goals is education. In 2009, SPIE spent $1.9 million on educational programmes, including student scholarships, education outreach grants, student chapter support and leadership workshops, travel support, visiting lecturer programme, women in optics, science fair prizes and free educational materials. SPIE also supports the Active Learning in Optics and Photonics (ALOP) programme in collaboration with UNESCO. It also financially contributes to the ICTP Winter Colleges in Optics as well as the

Quantum Cascade Laser project which is being carried out in collaboration with INFN. The SPIE Digital Library is the most extensive resource available on optics and photonics, providing unprecedented access to more than 275,000 technical papers from SPIE Journals and Conference Proceedings.

Yzuel said that she hoped there would be time to discuss the strengthening of collaboration with ICTP and UNESCO and to consider expanding the areas of collaboration.

Quevedo asked how their funding was obtained. Yzuel replied that SPIE organises very successful Optics and Photonics conferences and exhibitions where the greatest minds showcase the latest innovations across a wide range of technologies. Registration fees are charged for these events.

The International Commission for Optics (ICO) – Maria Calvo

Maria Calvo informed that ICO was established in 1948. It's main objective is to promote optics and photonics with broad attention to developing countries. ICO is a Scientific Associate of the International Council for Science (ICSU) and an Affiliated Commission of the International Union of Pure and Applied Physics (IUPAP). The Commission has two categories of Members: Territorial Committee Members (51 members including two Associate Members), and International Organisation members (6 members).

In addition to its Congresses, ICO initiates international topical meetings, and acts as a cosponsor for a number of international scientific meetings organised by other institutions.

Calvo made a few remarks about ICSU. ICSU's resources are directed towards strategic activities. Their five year strategic plan 2006-2011 is oriented to actions on environmental science, ecosystems, energetic resources and food security following the recommendations of the United Nations. It defines a programme on "Ecosystem Change and Human Well-Being" in collaboration with all areas and fields of science and related technologies. Its new strategic plan for 2012-2017 is under preparation. In December 2009 it created a Science Education Panel which will assess ICSU's past and current activities in relation to science education.

ICSU has a grants programme to support collaborative scientific initiatives of relevance to science and society. The amount for 2011 is Euro 300,000 and each grant can be no more than Euro 30,000 maximum. Calvo said that both ICTP and TWAS could qualify for an ICSU grant and she suggested that an application should be made for 2011. Closing date for receipt of applications is September 2010.

Quevedo asked which level of education ICSU was interested in. Calvo replied that it took care of all levels. In response to a question from Quevedo as to which kind of proposal could qualify for an ICSU grant, she said that the Winter College could perhaps be considered inside a more elaborate proposal with a larger objective of mapping initiatives for Africa, for example. The grants are distributed through the ICSU Regional Offices.

The Optical Society of America – Anthony Johnson

Anthony Johnson informed that the Optical Society of America was founded in 1916 "to promote the generation, application, archiving and worldwide dissemination of knowledge in optics and photonics" and has of the order of 16,000 members, 75% of whom are individual members and 25% students. OSA members reside in more than 95 countries. OSA dues are

discounted for members who reside in economically developing nations. There are 184 student chapters.

OSA supports conferences held in developing countries, offers travel grants to OSA Fellows travelling and lecturing in developing countries.

In 2004, OSA provided $10,000 towards the purchase of an optics kit for use at the University of Cape Coast in Ghana. Students assembled the kit and use it for hands-on experience.

Regarding educational resources, OSA makes freely available the following to educators and students around the world: classroom demonstration materials, grant programmes, travelling lecturer programmes and special education and student events. It has also developed an optics suitcase which has been distributed to underserved communities reaching 8,000 students in 2008-2009.

Danailov mentioned that OSA had provided travel support for supervisors of three students studying at Elettra within the STEP programme which had allowed them to come to ICTP to interact with the local supervisors.

Guzman informed that OSA has started organising a new student leadership meeting in Latin America which has been very successful.

Consortini said that it is very important for the students coming from developing countries who participate in the Winter Colleges to be aware that all these activities exist.

Johnson said that OSA has been an enthusiastic support of ICTP and has supported many ICTP initiatives and programmes, including:

- annual support to the Winter College on Optics which, starting in 2009, is now $10,000
- contribution to the purchase of 3 copies of GLAD software, one which is used at the ICTP Lab in Trieste, one transferred to the ICTP Affiliated Centre in Cape Coast, Ghana and one transferred to the ICTP Affiliated Centre in Dakar, Senegal
- participation in ICTP's electronic journals delivery programme (eJDS)
- provision of free access to InfoBase to users at ICTP during the Winter College

The National Academies and the Board on International Scientific Organisations – Kathie Bailey-Mathae

Kathie Bailey-Mathae informed that the National Academies is a non-profit, non-governmental organization and consists of four organizations: the National Academy of Sciences, the National Academy of Engineering, the Institute of Medicine and the National Research Council. It brings together committees of experts in all areas of science, technology or medicine and provides scientific advice to the US government and the public. It is active in international activities such as the InterAcademy Panel, the International Council for Science (ICSU), UNESCO, TWAS and other partners.

The Board on International Scientific Organizations (BISO) oversees a network of more than 20 U.S. National Committees (USNCs) corresponding to the various International Council for Science (ICSU) scientific member bodies in an effort to strengthen US participation in international scientific, engineering, and medical organizations.

US involvement in the ICO is promoted not only through professional societies but also by the US Advisory Committee (USAC), which operates through the U.S. National Academy of Sciences (NAS). The USAC supports ICTP's Winter College in Optics by funding two lecturers. Efforts are being made to expand US support and to join international efforts to further strengthen ICTP's educational and research activities on optics.

The Committee is also supportive of the Education and Training in Optics and Photonics conference, the single bi-annual international conference dedicated to the exchange of ideas and experiences related to education and training in optics and photonics. ETOP, a joint initiative by ICO, OSA, and SPIE, brings together leading optics and photonics educators and training personnel from all levels and orientations, including pre-college, academia, and industry to discuss, demonstrate, and learn about new developments and approaches to teaching in these fields.

USAC/ICO has also helped support the participation of two facilitators in most of UNESCO's Active Learning in Optics and Photonics workshops (ALOP).

In 1998, the National Research Council (NRC) published a report titled Harnessing Light, Optical Science and Engineering for the 21st Century, that highlighted seven major areas where breakthroughs were taking place, including information technology and telecommunications; health care and the life sciences; optical sensing, lighting, and energy; optics in manufacturing; manufacturing of optical components and systems; and optics research and education. The NRC is now working on updating this report.

Together with the International Astronomical Union, USAC is assisting in developing an integrated strategic approach based on the future potential for research and education in each participating country. Sub-Saharan Africa will receive special attention. The IAU strategic plan includes the initiation of an endowed lectureship programme to provide semi-popular lectures at the high school level; long-term “institute twinning” between established astronomy institutes and university departments in less developed countries; creation of a small Global Development Office (GDO) to mobilize volunteers and coordinate new programmes; increasing regional involvement and the adoption of a “bottom-up” approach.

The Society for Photonics (IEEE-LEOS) – Kevin Williams

Kevin Williams informed that the Field of Interest of the Society is lasers, optical devices, optical fibers, and associated lightwave technology and their applications in systems and subsystems in which quantum electronic devices are key elements. The society is concerned with the research, development, design, manufacture, and applications of materials, devices and systems, and with the various scientific and technological activities which contribute to the useful expansion of the field of quantum electronics and applications.

The Society helps in promoting close cooperation with other IEEE societies and councils in the form of joint publications, sponsorships of meetings, and other forms of information exchange. Appropriate cooperative efforts will also be undertaken with non-IEEE societies.

Mission Statement

The Photonics Society shall advance the interests of its members and the laser, optoelectronics, and photonics professional community by:

- providing opportunities for information exchange, continuing education, and professional growth
- publishing journals, sponsoring conferences, and supporting local chapter and student activities
- formally recognizing the professional contributions of members
- representing the laser, optoelectronics, and photonics community and serving as its advocate within the IEEE, the broader scientific and technical community, and society at large.

Quevedo asked what was the involvement of the developing world in the society. Williams replied that this was expanding with the creation of chapters in Asia and Central Eastern Europe. The Society was also in the process of creating a series of networks.

European Optical Society (EOS) – Roberta Ramponi

Roberta Ramponi informed that the European Optical Society has 22 member societies in 20 countries, 10 branches, 12 affilliated societies plus individual and corporate members. There are 6,000 members in Europe and worldwide.

As a member of TSOSA, EOS donates Euro 1,000 to the Winter College on Optics.

At every EOS topical meeting and EOSAM, EOS awards prizes for students, for example, a prize for the best poster or for the best oral presentation.

The purpose of the EOS prize is to encourage a European dimension in research in pure or applied optics. The prize is normally awarded annually to the authors of a research paper in any branch of optics. The award consists of a cash prize.

EOS organises and manages the Photonics21 Student Innovation Award. The next Photonics21 Annual Meeting will take place on the 24 February 2011 in Brussels. EOS also fosters cooperation between academia and industry by increasing the number of industry internship programmes and starting an internship job fair. A survey on internships has been carried out in order to better link students with industry requirements and to acquire information on the experience companies and institutes have made concerning the knowledge and skills of students.

EOS supports EU projects, in particular the photonics explorer, a project for the development, testing and distribution of educational photonics kits. In particular, EOS support consists in hosting the workshops which will be organised for the training of the teachers on the photonics explorer; promoting any kind of information on the project and on the development of the photonics explorer to amplify the publicity of the kit; publishing news and articles in the EOS newsletter and on the EOS website.

EOS co-sponsors a number of events related to optics and photonics. An EOS co-sponsorship does not include any financial obligations on the part of the organisers or the EOS. The EOS offers promotional support to the organisers of optics/photonics-related events by announcing the event to the EOS membership.

EOS produces an electronic journal, a newsletter and an electronic EOS member newsletter.

Quevedo asked how close was the relationship among EOS, OSA and SPIE. Ramponi replied there was no formal cooperation in terms of an agreement. The cooperation was more informal.

The African Laser Atomic Molecular and Optical Sciences Network (LAM Network – Ahmadou Wague

Ahmadou Wague informed that the LAM Network was launched in Dakar in 1991 on the occasion of the first International Workshop on the Physics and Modern Applications of Lasers, with the support of ICTP, the Senegalese Government and the French Embassy in Senegal and the participation of more than 20 African countries as founding members.

The main purpose of the Network is to promote the physics of lasers, atoms, molecules, optical sciences and their applications as well as to develop scientific cooperation in these fields in Africa.

The Headquarters of the Network is located at the Laboratory "Atomes Lasers", an ICTP affiliated centre at the Faculté des Sciences et Techniques, University Cheikh Anta Diop of Dakar. The network involves scientists from almost all African countries.

The LAM Network has organized 9 international workshops on lasers and applications and a number of schools and conferences in collaboration with ICO. It has also collaborated in other African initiatives for the development of laser and optical sciences in Africa.

In collaboration with ICTP and the International Programme for Physical Sciences (IPPS), Uppsala, Sweden, and the Atomic Physics Division of Lund Institute of Technology, Sweden, operational laboratories in Diode Laser spectroscopy have been implemented in Senegal, Ghana, Sudan and Kenya. In the same framework, in 2001, in collaboration with the Lund Institute of Technology Laser Centre, the Network participated in a one month workshop "Laser Spectroscopy in Development" in Lund, Sweden, with participants from Senegal, Ghana, Kenya, Sudan, Zimbabwe, Tunisia and Ecuador. The Workshop was an occasion for each participant to build their own blue diode spectrometer to be taken home. These spectrometers are operational in Africa, for example in Senegal in Photodynamic Therapy and plant monitoring applications. In November 2009, a workshop on multispectral microscopy for medical diagnostics in Ghana in collaboration with ISP and Lund University was held.

The LAM Network is also developing programmes of scientific exchange visits between different research institutions in Africa.

The African Physical Society was officially launched at the LAM 9 International Workshop which was held in Dakar in January 2010.

Optics Within Life Sciences (OWLS) - Gert von Bally

Gert von Bally informed that the Society for Optics Within Life Sciences was founded in 1990 under the umbrella of ICO. It is an interdisciplinary society and pursues a policy aimed at the advancement and global diffusion of optical sciences and technology. OWLS is based on individual membership and has members from 40 countries from all continents except Arctic and Antarctic. One third of its members are from the developing world. OWLS has supported the ICTP Winter Colleges and has developed projects, for example in Ghana and Rwanda.

The 11th OWLS Conference on Optics-based Therapeutics, Diagnostics and Analytics will be held in Quebec from 28-30 September 2010 within the context of the Biophotonics Week. This will be a participant-driven conference with strong student participation, covering the broad spectrum of bio-photonics R&D and applications. It will deal with optics-based therapeutic, diagnostics and analytics in the life sciences, biotechnology, medicine, agriculture,

biodefense and environment fields. ICO has made available a grant of up to $1500 to assist one or more graduate students or young scientists from developing countries to attend the OWLS conference.

Minutes (Part 1) prepared by Anne Gatti, ICTP Director's office. August 2010.

PART 2

4. Briefing on 2009 ICTP activities on Optics:

STEP and ELETTRA

M. Danailov is working on the construction of a femtosecond laser oscillator with a technology that can be easily transferred to less developed countries. It uses a Ti-Sa seed. During the last year 3 former Step students got their PhD degrees. Through the OEA network there have been 3 visits of 45 days. The main interests of the three ICTP associates that were working in the Lab was the construction of ultrafast fibre lasers and nonlinear fibre optics. An ultrafast Erbium doped laser was built in the lab. This type of systems are easy to build and very robust. The power obtained was enough to produce a continuum of light in fibres and to serve as a source for nonlinear optics.

The Lab would like to organize an activity in that area, where the ICTP associates can serve as tutors. The components for the laser cost around 3000 euro. The participants could build lasers at ICTP and take them back home. Usually their labs have equipment for telecommunications within the engineering Faculty and they have equipment for YAG lasers in their Physics Departments, whose set up is very similar. They need just to learn how to use the Erbium doped fiber.

The Lab has students from Ukraine, Macedonia, Belarus, and Bulgaria. The program is supported by the IAEA, which decides who to support Applications from India has not been supported. ICTP is trying to give more publicity to the program.

ICTP activities in Optics

J. Niemela reports that the preparatory winter school in 2009 included hands-on activities at the Microprocessor Lab in the evenings. The participants in the College on Environmental Optics commented that it was more like a conference than like a course. There were repetitions and presentations not concatenated, which is a responsibility of the College directors. All the participants want to see more computer modeling. There is some of that in the 2010 college. J. Niemela presented to the ICTP staff a summary of the activities on optics, where he highlighted the unique features of TSOSA and the fact that this is the only College that changes topics and directors every year, which might be risky but makes it very interesting. He also pointed that the College has inspired new activities and participants can be back acting as directors of other activities.

Other activities on Optics and Laser Physics

a) ICTP held last year the activity "Introduction to Optofluidics" that included topics in optical tweezing.

b) Proposal for a Regional Workshop on Optofluidics and Optical Manipulation, to be held in Cape Coast, involving optical manipulation with applications to biophysics, which will be organized by Ahmadou Wague. The budget is around 9 to 12 thousand euro, and the idea is to leave a set in Cape Coast to launch a new research line attached to those at Elettra, which allows offering to the students the opportunity to come to Trieste and work with the same equipment.

Quantum Cascade Laser (QCL) project

A. Vacchi reports that the project started two years ago as an ICTP/INFN collaboration with support from SPIE. There has been collaboration with the TUM Munich, and the Italian lab. The original idea was to develop the lab in Munich and carry it back to Italy, which was done in 2009. Although they wanted to develop a custom QCL with the Schotky Institute in Munich, the resources of the institute were not available and a QCL was bought to the European company ALPI Laser, the only producer which grows the laser in Neuchatel with an MBE. After having replaced twice the person in charge of the lab, they have a new collaborator who is characterizing the lasers. The project was conceived for three years but they are delayed with respect to the original schedule. The purpose is to stimulate the transition in the muonic atom in the 1s state in order to confront QED calculations and sense the polarizability of the proton. As part of the Lab activities, they had a seminar by Lyubomir Stoychev in July 2009. A STEP Student from Togo wrote a report about the situation of QCL lasers and the task measurement. The main achievement was the establishment of the Lab in the research area in Trieste.

- *Main future tasks:* to overcome problems due to migration of collaborators. To do the characterization of the available QCL sources, to work out the laser cavity, and to drive laser arrays.
- *Time table:* The original dates (2011, and 2012) were too optimistic. First results might be achieved in 2014 or 2015, depending on the collaborations to be established.
- *Organization of the Lab and accessibility to students:* The working model for the QCL Lab will be similar to that of the Laser Lab.

J. Niemela comments that ICTP Associates from Syria are interested in joining the project The INFN is interested in involving more students. TRIL wants to support a fellow for South Saharan Africa for 9 months. There is a possible collaboration with the Politecnico di Milano for measuring the laser line width. A. Vacchi is going to make a proposal for the developing the laser to the board of the INFN and intends to involve more people within Italy.

A Vacchi needs advice to produce their own laser in order to reduce costs. The facilities in Trieste are able to grow only one part of the process. After asking for the type of materials (Indium Arsenide and Gallium), M. Bertolotti mentions that he has collaboration with Bari, where facilities for growing multilayers are available.

Maria L Calvo asks if three-month visits of STEP students will be useful. A. Vacchi says that they could be used, but working on the experiment they will need longer time. The idea is to bring students that have a QCL laser in Cape Coast, so that they have the same capabilities there. The particular student that they have in mind, had background in infrared diode lasers and the stay can be up to 6 months. INFN has its own program for visitors.

6. Discussion on Future Activities and other business

Topics for future Winter Colleges and suggestions of possible College Directors

Winter Colleges have normally three directors, one being from Italy and another from a developing country.

Proposals for Winter College 2011

1. Microstructural Science. Directors: Pavel Cheben (Canada), Luis Ponce (Cuba/ Mexico) Contact: Maria L. Calvo.
   Comment: Replace L. Ponce by Gaponenko from Bielorus.

2. Recent advances in nanotechnology: Photonic biosensors. Plasmon propagation and Plasmonic devices for sensing. Contact: M. Bertolotti.
   Comments:
   - Plasmonics is the most important way to handle nanophotonics and devices are not too expensive. Open minded for anybody other director proposals.
   - We had a very recent Winter College on Nanoscience.

3. Imaging Science: presented by William T. Rhodes, Florida Atlantic University. The proposal was approved. Director: William T. Rhodes.

Tentative Directors from developing country: Jorge Ojeda Castañeda (Mexico), Roman Castañeda (Colombia). The Italian director is to be determined.

*Report of the working group meeting of the Active Learning in Optics and Photonics (ALOP) program, 2-5 January 2010, Manila (**Minella Alarcon,** UNESCO)*

There was an ALOP project review at the Ateneo of Manila University in Philippines during 3-5 January 2010. The project started in 2003. Now the core issues are its implementation in developing countries and to improve the modules and their presentation. Khalid Berrada and Souad Lahmar attended the review as new team members. The purpose was:

1. To review all the modules and check for the availability of materials in developing countries based in experience and the follow up activities in Tunisia and Morocco.

2. Discuss the organization of other ALOPs in Africa, Asia and Latin America.

3. Review the follow up activities and the LOCE.

4. Discuss the second edition of the ALOP training manual. It was published initially in English and there have been two printings. The first French version is already published. Spanish and Arab versions are in process. Study the feasibility of other formats for publishing the manual.

5. Training o new facilitators, and promotional activities.

6. Use of materials that enable workshop participants to do activities by themselves. The ALOP team thinks that the kits are simple but their use is not so simple for teachers.

Local assembly and fabrication is encouraged, with the exception of the materials for the module on lenses and the optics of the eye. It is recommended to use the materials described in the training manual. Deviations confuse the participants.

7. The kits on optical data transmission and wavelength division multiplexing (modules 5 and 6) are made of complicated circuits. Facilitators encourage to source out components and build circuits by themselves. So far the circuits have been built only by Alex Mazzolini. The circuits are like black boxes, and have a microcontroller for a RGB LED. Teachers do not need know how the circuits have been designed but to get the concept of WDM.

8. There is the need to prepare a list and description with photos including lenses and ask the local organizers to source out these materials locally. Is it advisable to have the organizers prepare everything? They can use simple designs made from low cost materials, for optical bench and lens holders.

9. The suggested structure would be to create regional groups with a workshop coordinator, who works with the local organizer and with the ALOP coordinator at UNESCO level, and who can effectively communicate with local organizers about preparations especially of materials and equipment.

10. Regional facilitators prepare the materials and should master at least one module. They should organize follow up workshops in their own countries. Tunisia and Morocco have already replicated workshops with not all of the topics (2-3 modules). They invite teachers and act as local facilitators, use materials fabricated locally and the Workshops are funded by local resources. In Tunisia the Tunisian optical society holds modules on a regular basis for many weekends per year. In Morocco there is a 3-year project based on UNESCO and SPIE initiatives to train 400 high school teachers in 3 years with support of the government. UNESCO's involvement is the best way to obtain local government support. The Moroccan group is building an ALOP website and a sampler. The Latin American Physics Education Network could manage this group in Latin America.

The Gallieno Denardo ICO-ICTP Prize Awardee

The Gallieno Denardo ICO-ICTP Award Committee, composed of Ahmadou Wague (chair), Joe Niemela, Anna Consortini and Mitcho Danailov, recommended Dr Cleber Mendonça of the University of Sao Paulo, Brazil "for the development of novel methods and procedures of nonlinear optics, in particular the use of femtosecond pulses and fetosecond laser micro-fabrication in polymers for investigating nonlinear optical properties of organic compounds, and for establishing effective interdisciplinary collaboratns within Brazil".

Election of TSOSA Chair 2011

The TSOSA re-elects Angela Guzman as Chair of the TSOSA for 2011.

No other business. Meeting adjourned.

Minutes (Part 2) prepared by the ICO Secretariat. December 2010.
Final version Approved in February 2011.

SUMMARY OF THE MINUTES OF THE 2011 TSOSA ADVISORY COMMITTEE MEETING

Held on Tuesday, February 8, 2011 at ICTP, Trieste, Italy

Participants:

E. Arthurs (SPIE)
K.E. Bailey-Mathae (NAS)
Z. Ben Lakhdar (ICO)
M. Bertolotti (EOS)
M.L. Calvo (ICO)
A. Consortini (SIOF)
M. Danailov (Laser Lab, Elettra)
A.T. Friberg (ICO)
A. Guzmán (ICO, Chair)
A. Johnson (OSA Representative)
V. Lakshminarayanan (OSA)
J. Niemela (ICTP)
K. Plenkovich (SPIE)
R. Ramponi (EOS)
K. Svanberg (SPIE Representative)
A. Vacchi (INFN)
G. Von Bally (OWLS)
A. Wagué (LAM Network)
M.J. Yzuel (SPIE)

1. Introduction of board members and welcoming remarks by Professor J. Niemela

J. Niemela welcomed everyone to the meeting. He informed that Professor F. Quevedo was ill and unable to attend but had sent his best wishes for a successful meeting and had assured ICTP support for TSOSA activities. J. Niemela requested the Board members to briefly introduce themselves.

2. Approval of the agenda and the minutes of the previous TSOSA meeting which was held in February 2010

The agenda was approved with minor changes taking into account that A. Vacchi had to leave early to travel to Rome and some additional members had requested to make short presentations.

The minutes were approved with minor corrections.

3. Briefing on 2010 activities

ICTP Winter College and Preparatory School

J. Niemela informed that ICTP helped to celebrate Laserfest in 2010 by organising a public event on 13 November 2010. That day happened to fall in the middle of a general strike and occupation of all the high schools in the Trieste area but working with student leaders,

parents and volunteer teachers, they had managed to attract of the order of 100 high school students to ICTP that day. The timing of the event fell immediately after the UNESCO World Science Day and the very successful conference "ICTP after 45: Science and Development for a Changing World".

The event was conducted entirely in Italian, including the two keynote lectures: Mario Bertolotti acting on behalf of the SIOF spoke about the history of the laser and Gianluca Valentini spoke about its use in cultural heritage preservation. Roberta Ramponi, EOS Past President, was contacted and asked for advice about possible speakers. In addition to these lectures, there were a number of booths and games involving lasers, an interactive discussion on the Free Electron Laser and a historical poster panel on the laser generously provided by SPIE, translated into Italian. E. Arthurs was also present.

Another Laserfest was later organised in Florence.

The Winter College on Optics and Energy (2010), directed by G. Lanzani and Vengu Lakshminarayanan, was very successful and particularly timely since ICTP is creating a multidisciplinary laboratory and a programme in photovoltaics in conjunction with SISSA.

J. Niemela said that he would like to make use of space in the Multidisciplinary Laboratory to set up a small hands-on laser laboratory which could possibly be used for training activities in future preparatory schools.

R. Ramponi said this was very good news.

The 2011 Winter College on Imaging Science has three directors, William T. Rhodes, Gianluca Valentini, and Jorge Ojeda-Castañeda. The preparatory school was held in a new format, with contents specifically oriented to give a background for the College but avoiding basic theory of electromagnetism. W. T. Rhodes and G. Valentini, two of the directors of the Winter College, took part and lectured in the preparatory school. It went very well and associates liked the format. There were problems with visas for the participants. Accepted participants from Tunisia and Egypt could not obtain their visas on account of the political unrest. There was only one participant from Pakistan who managed to get a visa. This person travelled with a business visa. Usually Pakistan is very well represented. This would be a recurring problem. This year the largest number of applications came from Iran.

J. Niemela informed that from the time he had taken over the responsibility for the optics activities, there had been a record number of applications this year – over 300. He explained with some detail the selection process. Now all the applications are on-line and the Directors of activities do not have to travel to Trieste to undertake the selection. Criteria for selection are scientific excellence, a good CV and publications in international journals inside ISI Web of Knowledge. In addition, geographical and gender distribution are taken into account. Students need to have letters of recommendation in order to be issued a visa. ICTP will not pay for anyone over the age of 45. This year the National Academy of Sciences had paid for three students and two lecturers from the US to participate in the college. It is a good thing to bring US students to participate in the activities and program formation along with colleagues from all over the world.).

R. Ramponi recalled that in the times of Gallieno Denardo, they had once received of the order of 450 applications.

J. Niemela mentioned another two activities in optics which would be held in the course of the year: Workshop on Singular Optics and its Applications to Modern Physics (30 May-3 June) and the Regional Workshop on Optofluidics and Optical Manipulation (Cape Coast, Ghana in October-November). This would be a hands-on workshop with participants also coming from Senegal. The idea was to try to start a research area. An optical tweezers kit would be brought to Cape Coast and left there.

STEP Programme

Before speaking about the STEP Programme, Danailov said that he wished to give some information about the main research line at the ICTP-Elettra Laser Laboratory on Applications of femtosecond lasers to Free Electron Laser Development. The laboratory is strongly involved in the development of the ultrafast laser systems for the Fermi@Elettra project. FERMI will be the first seeded FEL facility, including several state-of-the-art laser systems. During the night between December 13 and December 14, the FEL source seeded at 260 nanometers with an external laser, produced the first coherent emission from the FEL-1 undulator chain tuned at wavelengths of 65 *nm* (fourth harmonic of the seed laser) and 43 *nm* (sixth harmonic). This is an extremely important milestone and proves that the simulation works.

During 2010 there were 10 STEP fellows in optics hosted in Trieste for periods of 45 days to 4 months. Two students from Togo, M. M. Dzagli and K. S. Gadedjisso-Tossou, visited the QCL Laboratory. D. N. Tatyanko, a PhD student from Ukraine spent three months in Trieste and Y. Machekhin, his home advisor, received support from OSA to visit Trieste for a week during Mr. D. Tatyanko's visit. The other STEP Students came from Colombia, Egypt, Bulgaria, Ukraine, South Africa, Uzbekistan and Nigeria. Three of them visited other laboratories at Elettra linked to optics. All of them are working for their PhD at home and come to ICTP for 3-4 months to conduct experiments or research linked to their PhD.

There were also other visits supported through other ICTP programmes: three CEI fellows (45 each) one ICTP/Elettra TRIL Fellow and two associates.

In reply to a question by A. Guzmán, M. Danailov replied that half of the expenses of TRIL fellows who come to the Laboratory are paid by Elettra and half by ICTP through the ICTP/ELETTRA agreement. The TRIL Fellows are relatively senior scientists who already have their PhD degree.

A. Wagué asked if any activity was organized for students in Sub-Saharan Africa. J. Danailov mentioned again M. M. Dzagli and K. S. Gadejisso-Tossou, the two students from Togo who had been working at the QCL Laboratory . He also mentioned that the final selection of STEP students is done by IAEA in Vienna. A student may be selected by ICTP but might not get the support of his/her country's diplomatic mission in Vienna. IAEA supports all candidates except those from India which has not signed the non-proliferation treaty.

QCL Project

Andrea Vacchi outlined the progress made in the Quantum Cascade Laser project.

E. Arthurs asked A. Vacchi if Federico Capasso, the inventor of Quantum Cascade Laser technology, had ever been involved with the Laboratory. A. Vacchi replied that initially he had had some contact with him and had been encouraged by him to go ahead with the experiment.

ICTP-Elettra Users' Programme

J. Niemela explained that this programme offers access to the radiation facility Elettra in Trieste to scientists from developing countries that work in those countries. A minimum annual total of 1,500 hours is available within this programme for beam-time applications at any of the existing Elettra beam-lines. Since the programme started in 2002, it has supported 399 visits of users from 23 different countries.

A group of scientists from Bangalore is expected early in 2011 and it is hoped to start longer term collaboration with them.

M. J. Yzuel expressed her concern about the future of the research activity in the Quantum Cascade Laser Laboratory. She felt it would be important to find a Ph.D. student to come and spend a longer period of time.

J. Niemela mentioned the STEP programme but pointed out that for experimental activities, a period of four months is too short a time to spend in a laboratory. The ideal would be for the graduate students to spend the whole period of their degree at the laboratory, and to make arrangements with the Italian Universities so that foreign students are able to apply to programs in Italian Universities without presenting exams. ICTP will develop PhD programs with the University of Trieste. The TRIAL fellowship could be for a year as a post doc.

Other activities and programmes

ICTP-ALOP

J. Niemela informed that since Minella Alarcon's retirement from UNESCO, there was no longer a UNESCO representative on the TSOSA Advisory Board since there is no one, at present, in UNESCO working in the field of optics/lasers.

A. Johnson said it would be important to have someone from UNESCO on TSOSA. After some discussion, it was agreed that G. Kalonji, the new UNESCO Assistant Director-General for Natural Sciences, would be approached asking her to nominate a UNESCO representative on TSOSA.

Z. Ben Lakhdar and V. Lakshminarayanan said that UNESCO gave high priority to the Active Learning in Optics (ALOP) programme which is a programme for teaching optics to high school teachers and first year undergraduates using hands-on techniques. J. Niemela confirmed that M. Nalecz, Director of the Division of Basic and Engineering Sciences at UNESCO, and H. Schopper, former CERN Director-General and Chairman of the International Basic Sciences Programme at UNESCO, also gave great importance to this programme. J. Niemela is going to direct the ALOP Program from ICTP, but the administration of the program will continue through UNESCO. Applications should be submitted to J. Niemela.

The next ALOP activity was supposed to be in Tunisia but has been cancelled on account of the recent political unrest. It may be held in 2012. Negotiations are underway to have an activity in Rwanda.

A. M. Guzmán mentioned the very successful ALOP activity in Colombia. It was the university which took responsibility for this activity and local facilitators built up all the required equipment. The contribution from UNESCO was 20% of the total cost. The Universidad Nacional de Colombia financed 80%. This kind of involvement of the local community should be encouraged in other countries. A. M. Guzmán suggested using the Colombian model to further spread and giving larger outreach to ALOP in Latin America, with emphasis in Central America.

Z. Ben Lakhdar suggested the possibility of organising the teaching of one or two ALOP modules during the preparatory school. She felt that this would be very useful for the participants.

It was confirmed that the ALOP manuals have already been translated into French, Arabic and Spanish, as a first in initiative with possibilities for extending to other languages.

Initiatives of international organisations in support of ICTP programmes

SPIE

K. Svanberg introduced herself as the new President of SPIE and said that she was the first clinical doctor to hold this position. She was also Professor of Oncology at Lund University.

K. Svanberg briefly summarised the areas of ICTP/SPIE collaboration. SPIE participates in the TSOSA Committee since its inception in 2003. It provides funding in the amount of US$90,000 over three years to fund an optics position in experimental research at the Quantum Cascade Laboratory. This support consists in encouraging development of new cost-saving equipment, building familiarity with the equipment and hands-on learning. SPIE also contributes US$5,000 to the Winter College. It also collaborates in the Electronic Journal Delivery Service (e-JDS) programme.

SPIE would like to consider other areas of collaboration with ICTP such as educator training, student programmes and promotion of women in science. SPIE spent of the order of US$2 million in 2010 on altruistic programmes consisting of student scholarships, education outreach grants, student chapter support and leadership workshop, student author travel support, visiting lecturer programme, women in optics, science fair prizes and judges, free educational materials, the Education and Training in Optics and Photonics Conference (ETOP) and the International Network for the Availability of Scientific Publications (INASP). SPIE supports ALOP with US$20,000 annually.

OSA

A. Johnson said he had already given a more detailed presentation on OSA activities at the last meeting and would now simply give a brief summary of the outreach programmes.

OSA had once again supported this year's Winter College with the amount of US$10,000. OSA permitted access for all the students of the preparatory school into the base

publications of the Optical Society. In addition, one complementary student membership was given to all the students of the Winter College.

There are currently over 210 OSA Student Chapters, 44% of which are in developing countries and OSA Student Membership is approximately 50% non-US based. More than US$400,000 in funding is disbursed to Student Chapters and Local Sections by OSA and the OSA Foundation annually.

To support communities in developing countries, OSA's International Council programmes provide about US$50,000 each year for meeting support and Fellow Member visits in developing countries. In the past two years, OSA has supported Fellow Member travel to Brazil, Chile, China, Colombia, India, Indonesia, Mexico, Pakistan, Syria, Turkey, Ukraine, Serbia and Vietnam.

EOS

R. Ramponi informed that EOS will soon be starting some student programmes. There was a strong need to involve university students much more in the promotion of optics. The programme would be discussed at the next General Assembly.

ICO

M. L. Calvo informed that ICO, as an ICSU Scientific Associate, is the only international organization linked to UN being represented at the TSOSA at present. As for activities in 2010, ICO had recently signed an agreement with OSA Foundation through which it will be able to receive donations for travel grants, helping meetings and student activities. This is in addition to current ICO activities to promote optics and photonics all over the world with special emphasis on programs in developing regions.

National Academy of Sciences

K. E. Bailey Mathae said that the National Academy of Sciences was very supportive of the activities, especially ALOP and the Winter Colleges and would be happy to extend US involvement.

Z. Ben Lakhdar said it would be necessary to arrange meetings where students could be encouraged to organise exhibitions, perhaps together with their supervisors.

LAM Network

A. Wagué informed that this year is the 20th anniversary of the LAM Network and the 10th international workshop though it still had not been decided where the workshop would be held.

Election of TSOSA Chair

After a discussion on the advantages of a possible rotation of the Chair position between the different organisations represented in TSOSA versus warranting continuity, A. Guzmán was unanimously re-elected as Chair for the period 2011-2012".

Discussion on topics for future Winter Colleges and suggestions of possible College Directors

K. Plenkovich, on behalf of SPIE, presented the following proposal for the Winter Collegue 2012:

"Lasers the Next 50 years: Laser types and Applications"

A Winter College on "Lasers the Next 50 years, " with a focus on laser types and forward looking applications could be shaped to include broad areas like life sciences or more focused topics include laser spectroscopy, laser measurements, laser acceleration, and laser tools and techniques.

The laser types should include ultrafast lasers but could also cover solid state, fiber, semiconductor/LED and vertical cavity surface emitting lasers (VECSELS) depending on focus.

Additionally this topic creates and opportunity to involve representative from pan-European projects likes Laserlab Europe http://www.laserlab-europe.net/ and the Extreme Light Infrastructure project http://www.extreme-light-infrastructure.eu/.

Director recommendations will depend on the final focus agreed to by the team but possible directors could include:

- Sandro de Silvestri (Extreme Light Infrastructure, Milano).
- K. Svanberg (Lund Univ., Sweden).
- Eric D Mazur, Harvard Univ (USA).
- Alfed Vogel (Institute of Biomedical Optics, Univ. zu Lübeck, Germany)
- Alexis Mendez (MCH Engineering LLC, USA).
- Ursula Keller (ETH, Switzerland)
- Alexander Heisterkamp (Laser Zentrum, Hannover, Germany)

K. Svanberg mentioned that Prof. S. Svanberg, not she, should be the proposed director. M. Danailov considers the proposed topics too broad and suggested to better delimit the topics of the school and to adopt a less ambitious title. SPIE joined his proposal. Other TSOSA members presented their proposals orally.

In summary the following topics and possible directors were suggested:

1. Trends in lasers and their applications to science and industry. Proposed by M. Danailov and SPIE. Possible directors: A. Zewail, Majed Chergui, Khaled Karray (Germany).

2. Advances in nanooptics and plasmonics. Proposed by Mario Bertolotti. Possible directors: Mario Bertolotti (Italy), Lukas Novotny (Rochester), Zheludev (London), Sarun Sumriddetchkajorn (Thailand), Naomi Hallas (Rice).

3. Microstructural Science. Proposed by M. L. Calvo. Possible directors: Pavel Cheben (Canada), Luis Ponce (Cuba).

4. Optics entrepreneurship and innovation. Proposal from Ari Friberg. Comment: the IoP has an agreement with ICTP to run this type of events.

5. Quantum Optics (classical and quantum entanglement). Proposal from Ari Friberg

6. Optics and security. Proposal by V. Lakshminarayanan . Considered by consensus of being possibly not appropriate for ICTP.

For the Winter College 2012, the topic was decided to be "Advances in nanooptics and plasmonics". Directors: Mario Bertolotti and Zohra Ben Lakdhar. The topic "Trends in lasers and their applications to science and industry" will be reconsidered for the following year.

J. Niemela will try to increase the visibility of ICTP Programs in the US.

The Gallieno Denardo ICO-ICTP Prize Awardee(s)

The ICO-ICTP Prize Committee is constituted by Prof. A. Wagué, chair of the Committee, Prof. Joseph Niemela (Italy, ICTP), Dr. M. Danailov (Italy, ICTP), and Prof. Anna Consortini (Italy). A. Wagué informed that the ICO/ICTP Gallieno Denardo Prize for the year 2011 has been awarded to Ryan B. Balili, Mindanao State University, Philippines and Ivan Moreno, Universidad Autónoma de Zacatecas, Mexico.

Other business

ETOP was supposed to take place in Tunisia in July 2011, but elections in the country are planed for that month. The event has therefore been postponed. This might give an opportunity to maximize participation of African people to ALOP, ETOP and the workshop for research organized by EOS. Suggested dates: 24-29 March ALOP. ETOP 29-31 March. EOS April 1-3, 2012.

Draft Minutes prepared by Anne Gatti, ICTP. First version July 3rd, 2011.
Reviewed by A. Guzmán, TSOSA Chair, July 4th, 2011
To be approved by the TSOSA Committee in 2012

PART II:

MEETINGS PROCEDURES

ICO CONGRESSES AND OTHER MAJOR ICO EVENTS

(Topical Meetings, Regional Meetings, Schools)

Information and Guidelines

A - General conditions:

1 - "Event" here refers to a scientific meeting or school. As opposed to other events with ICO participation, ICO Congresses and other major ICO events are generated from the very beginning by ICO or in close relation with ICO. A companion document to this one gives the information and guidelines for ICO Cosponsorship and Endorsement of Conferences and Schools, where ICO is not the primary organiser.

2 - The following rules apply in all cases to ICO General Meetings and other major ICO events

- the event should be international - typically, at least 30 % of the expected attendance and at least 50 % of the Programme Committee should be from outside the host territory;
- the ICO Bureau should perceive clearly that the meeting will be of a good scientific quality and that the timing and venue are appropriate;
- the ICO Territorial Committee of the territory where the event is to be held should approve the project;
- in agreement with the organisers, the ICO Secretariat applies for the formal sponsorship of the ICO General and Topical Meetings by IUPAP;
- the event organisers should confirm adherence to the general principle of "free movement of scientists" as defined by the International Council of Scientific Unions (ICSU) in the booklet "Advice to Organisers of International Scientific Conferences". In essence, the host territory must guarantee that a bona fide scientist or engineer of any nationality or citizenship may at-tend. It is not sufficient to make a guarantee only for persons from territories recognised by the host territory. Any failure to honour a guarantee is reported by ICO to ICSU through the Inter-national Union of Pure and Applied Physics (IUPAP) ; following a decision by IUPAP, the organisers are requested to publish the following sentence in any circular, announcement and in the proceedings of the conference : "To secure IUPAP sponsorship, the organisers have provided assurance that … (Conference name) will be conducted in accordance with IUPAP principles as stated in the ICSU Document "Universality of Science" (sixth edition, 1989) regarding the free circulation of scientists for international purposes. In particular, no bona fide scientist will be excluded from participation on the grounds of national origin, nationality, or political considerations unrelated to science."
- the registration fees for meetings should follow IUPAP's policy on conference fees. In accordance with the directive of the 2002 General Assembly, the limit on conference registration fees had been raised to 425 Euros for conferences to be held in 2006. In accordance with the directive of the 2005 General Assembly, the limit on conference registration fees had been raised to 450 Euros for conferences to be held in 2008 and 2009. Proceedings are included and "substantially lower" otherwise (the figure is increased periodically in line with inflation); in addition, the ICO Bureau recommends to have substantially discounted fees for full time students;

- ICO should approve the composition of the Programme Committee and be in a position to appoint part of it ; the ICO Associate Secretary in charge of meetings should be ex officio a member of the Organising Committee ;
- the ICO logo should be used in all documents related to the meeting that are made public;
- the event should be publicised in the ICO Newsletter; the texts are usually prepared in cooperation by the local Organisers and the ICO Secretary;
- the announcements, calls for communications and registration forms should be distributed, among others, through the channel of the ICO Territorial Committees;
- the organisers should accept to send free proceedings of the conference to countries where optics development requires special support ; a list of some addresses appropriate for that purpose selected by ICO will be provided by ICO. At present, the number of copies required is of the order of 20.

3 - ICO encourages meetings in all new areas of optics and meetings designed to fill specific needs, including regional development of optics. At the same time, ICO would like to avoid the unnecessary proliferation of conferences; section 6 of the Questionnaire should therefore be answered carefully, explaining why this particular conference should be held.

4 - Industrial participation in the Programme Committee and in the Organising Committee is usually required.

5 - There may be ICO financial participation in ICO Events, in the form of a grant, a loan, or a participation in the risks. ICO participation is an ICO Bureau decision. There is usually no ICO financial participation in ICO Endorsed Events.

Notes:

- participation in the financial risks means an immediate loan that can be converted in part or in totality into a grant if the event runs a deficit ; ICO accepts to take the first risk ; in case of a surplus, however, ICO receives a share of the surplus.
- in the 29 events held between ICO-20 and ICO-21 (both inclusive) with ICO participation, ICO was financially involved in 25 cases and assumed a risk six times. A typical amount of an ICO grant for a major ICO event is US$ 1500-5000, and for an ICO Co-sponsored event US$ 1000-2500. In most of the recent cases, the ICO grant was specifically awarded for the purpose of helping identified registrants from less favoured countries.

B - Special conditions for ICO Congresses

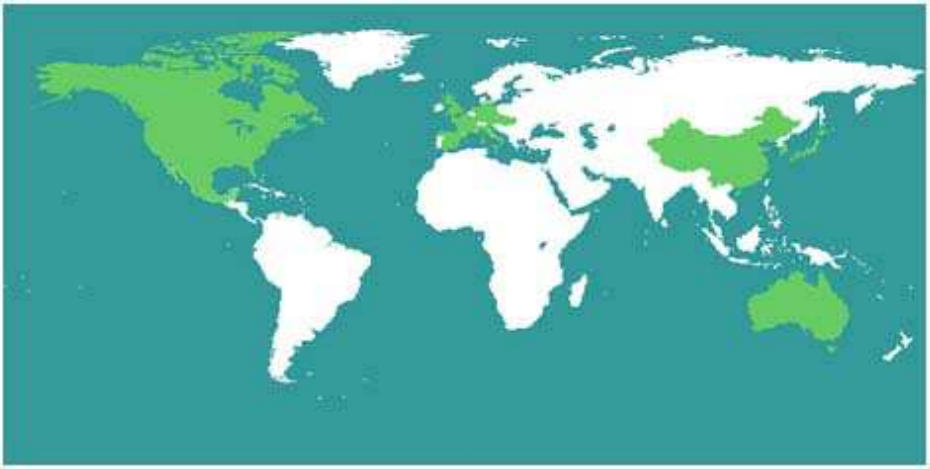
6 - ICO Congresses are held every three years; they include the General Business Meeting as requested by the statutes and a Scientific Meeting that should cover most of optics.

7 - For Congresses, calls for bids are issued by the ICO Associate Secretary with a deadline typically 4 years before the Meeting. The ICO Bureau in that year examines the bids and issues a proposition that is then submitted to the ICO Congress the following year. The ICO Congress makes the final decision. For ICO-22, to be held in 2011, the deadline was April 15, 2007 and the decision will be taken at ICO-21. For ICO-23, it is likely that similar dates, shifted by three years, will apply, with the deadline being April 15, 2010. Advance notice is always appreciated. Bids should be sent to the ICO Associate Secretary in charge of meetings and schools.

8 - The vast majority of the recent Congresses were held in August or early in September. However, according to the increase of activities meetings were also held in spring and fall seasons.

9 - The budget should provide for some financial help for invited speakers, the usual minimum being free registration. Special support is requested for invited speakers from countries where the development of optics is comparatively difficult. In recent ICO Congresses, the number of invited speakers has ranged between 30 and 40. The winners of the recent ICO Prizes and Galileo Galilei Awards are invited speakers at the next possible ICO Congress. Because there is usually one ICO Prize and one Galileo Galilei Award every year and one General Meeting every three years, this typically means that 6 invited speakers will be the winners of the recent ICO awards.

10 - The 2011 Congress, ICO–22, will be held in Puebla,, Mexico, in August 2011, under the motto “Light for the development of the world”. Previous ICO Congresses were held in the following countries



In green, countries that have hosted ICO General Meeting and General Assembly. Mexico has been included as hosting country of ICO-22.

:
ICO -21, 2008, Australia
ICO-20, 2005, China
ICO-19, 2002, Italy
ICO-18, 1999, the United States of America
ICO-17, 1996, Korea
ICO-16, 1993, Hungary
ICO-15, 1990, F.R. Germany
ICO-14, 1987, Canada
ICO-13, 1984, Japan
ICO-12, 1981, Austria

ICO-11, 1978, Spain
ICO-10, 1975, Czechoslovakia
ICO-9, 1972, the United States of America
ICO-8, 1969, the United Kingdom
ICO-7, 1966, France
ICO-6, 1962, F.R. Germany
ICO-5, 1959, Sweden
ICO-4, 1956, the United States of America
ICO-3, 1953, Spain
ICO-2, 1950, the United Kingdom
ICO-1, 1948, the Netherlands
(Preliminary meetings had been held in Czechoslovakia and France).

C - Other major ICO events:

11 - ICO usually organises Schools, Topical Meetings or Regional Meetings between the Congresses. During the period 1997-2011, the list is as follows:

- August 1997, ICO 50th Anniversary, Education and Training in Optics, Delft (Netherlands)
- February 1998, ICTP/ICO Winter College on Optics, Trieste (Italy)
- August 1998, ICO Topical Meeting on Optics for Information Infrastructure, Tianjin (China)
- February 2000 ICTP/ICO/OSA Winter College on Optics and Photonics, Trieste (Italy)
- April 2000, ICO Topical Meeting on Optical Science and Applications for Sustainable Development, Dakar (Senegal)
- (August 2001, ICO Topical Meeting on Information Optics, Caesarea (Israel), postponed)
- February 2002, ICTP/ICO/OSA Winter College on Ultrafast Nonlinear Optics, Trieste (Italy)
- February 2003, ICTP/ICO/OSA/OWLS/SPIE, Winter College on Biophotonics, Trieste (Italy)
- July 2003, ICO Topical Meeting on Polarization Optics, Joensuu (Finland)
- February 2004, ICTP/ICO/OSA/OWLS/SPIE, Winter College on Interferometry and Applications in Modern Physics, Trieste (Italy)
- July 2004, ICO Topical Meeting on Optics and Photonics in Technology Frontiers, Chiba (Japan)
- February 2005, ICTP/ICO/OSA/OWLS/SPIE, Winter College on Optics and Photonics in Nanoscience and Nanotechnology, Trieste (Italy)
- January/February 2006, ICTP/ICO/OSA/OWLS/SPIE/CEI, Winter College on Quantum and Classical Aspects of Information Optics, Trieste (Italy)
- September 2006, ICO Topical Meeting on Optoinformatics 2006/Information Photonics 2006, Saint Petersburg (Russia)
- February 2007, ICTP/ICO/OSA/SPIE/EOS/OWLS/CEI, Winter College on Fibre Optics, Fibre Lasers and Sensors, Trieste (Italy)

- November 2007, ICO Topical Meeting 2007 on Optics and Laser Applications in Medicine and Environmental Monitoring for Sustainable Development, Accra (Ghana)
- February 2008, ICTP/ICO/OSA/SPIE/EOS/OWLS/CEI, Winter College on Micro and Nano Photonics for Life Sciences Trieste (Italy)
- February 2009, ICTP/ICO/OSA/SPIE/EOS/OWLS/CEI, Winter College on Optics in Environmental Science.
- October 2009, ICO Topical meeting on "Emerging Trends and Novel Materials in Photonics", Delphi, Greece.
- 2010 ICTP/ICO/OSA/SPIE/EOS/OWLS/CEI, Winter College on Optics and Energy
- October 2010, ICO Topical meeting on Optics and Energy, Paris, France.
- Jannuary/February 2011 ICTP/ICO/OSA/SPIE/EOS/OWLS/CEI, Winter College on Optics in Imaging Science.

12 - ICO Meetings should correspond to a clear need in a given subfield of optics or in a given geographical area.

13 - Although it never happened up to now, it is in principle possible to have more than one ICO major meeting in a given year or to have one in the same year as a Congress.

14 - Bids for all major ICO events to be held prior to December 31, 2012 are now welcome and should be sent to the ICO Secretariat. A deadline of April 15, 2011 applies to major ICO events to be held before December 31, 2012 and similarly for the rest of the term 2011-2014.

15 - Opportunities to organise schools are welcome; ICO Schools should normally be specialised to some area of optics and should last between one and three weeks; geographical areas with special needs for the development of optics are particularly welcome.

ICO COSPONSORSHIP AND ENDORSEMENT OF CONFERENCES AND SCHOOLS

Information and Guidelines

A - General conditions

1 - ICO provides sponsorship and endorsement to international conferences and schools - typically, those with at least 30 % of the attendees and at least 50 % of the Programme Committee from outside the host territory. "Event" in the forthcoming refers to conference or school. A companion document to this one gives the information and guidelines for events

directly generated by ICO or in particularly close cooperation with ICO (i.e., ICO Congresses, ICO Topical Meetings, ICO Regional Meetings, ICO Schools).

2 - ICO participation implies in all cases

- that the ICO Bureau perceives that the meeting will be of a good scientific quality and that the timing and venue are appropriate;
- that the ICO Territorial Committee of the territory where the event is to be held approves the project;
- that the event organisers confirm adherence to the general principle of "free movement of scientists" as defined by the International Council of Scientific Unions (ICSU) in the booklet "Advice to Organisers of International Scientific Conferences". In essence, the host territory must guarantee that a bona fide scientist or engineer of any nationality or citizenship may at-tend. It is not sufficient to make a guarantee only for persons from territories recognised by the host territory. Any failure to honour a guarantee is reported by ICO to ICSU through the International Union of Pure and Applied Physics (IUPAP).

3 - ICO encourages meetings in all new areas of optics and meetings designed to fill specific needs, including regional development of optics. At the same time, ICO would like to avoid the unnecessary proliferation of conferences; section 6 of the Questionnaire should therefore be answered carefully, explaining why this particular conference should be held.

4 - Industrial participation in the Programme Committee and in the Organizing Committee is usually required.

B - Special conditions for ICO Cosponsored Events and for ICO Endorsed Events:

5 - The distinction between the two categories "ICO Cosponsored Event" and "ICO Endorsed Event" is outlined in the following points. The ICO Bureau makes the decision but organizers are welcome to propose a category.

6 - ICO Cosponsored Conferences must follow IUPAP's policy on conference fees. For conferences held in 2010, the upper limit was Euro 450 where proceedings are included and "substantially lower" otherwise (the figure is increased periodically in line with inflation, but no changes have been published for the period 2011-2014). For ICO Endorsed Events, exceptions to that rule may be made.

7 - In ICO Cosponsored Events, ICO must be associated from the beginning, and usually no later than 18 months in advance.

8 - In ICO Cosponsored events, the ICO Associate Secretary (in charge of meetings) is ex officio a member of the Organizing Committee and should be kept regularly informed of the progress of the organization.

9 - In ICO Cosponsored events, the ICO Bureau designates one member to represent it in the Programme Committee. For ICO Endorsed Events, exception to that rule may be made.

10 - For ICO Cosponsored Events, the organizers are always welcome to use the channel of the ICO Territorial Committee mailing list to distribute information.

11 - For ICO Cosponsored Events, the organizers are requested to send free proceedings of the conference to countries where optics development requires special support; a list of some addresses appropriate for that purpose selected by ICO will be provided by ICO; for ICO Endorsed Events, the same action is recommended. The number of copies requested is of the order of 20.

12 - All ICO Cosponsored and ICO Endorsed Events are listed in the column "Forthcoming events with ICO participation" in the ICO Newsletter. In addition, organizers of ICO Cosponsored Events are welcome to provide the ICO Secretariat with a 1000 to 2000 words article, if possible with an illustration, for further publicity in the ICO Newsletter. Because the responsibility for the publication rests on it, ICO has the liberty to slightly edit the text to adapt it to the general style and to the space available.

13 - The use of the ICO logo in documents concerning ICO Cosponsored Events is desired; it is permitted in ICO Endorsed Events.

14 - There may be ICO financial participation in ICO Cosponsored Events, in the form of a grant, a loan, or a participation in the risks. ICO participation is an ICO Bureau decision. There is usually no ICO financial participation in ICO Endorsed Events.

Notes:

- participation in the financial risks means an immediate loan that can be converted in part or in totality into a grant if the event runs a deficit ; ICO accepts to take the first risk ; in case of a surplus, however, ICO receives a share of the surplus.
- in the 29 events held between ICO-20 and ICO-21 (both inclusive) with ICO participation, ICO was financially involved in 25 cases and assumed a risk six times. A typical amount of an ICO grant for a major ICO event is US$ 1500-5000, and for an ICO Cosponsored event US$ 1000-2500. In most of the recent cases, the ICO grant was specifically awarded for the purpose of helping identified registrants from less favoured countries.

STEERING COMMITTEES

ICO is involved with OSA, SPIE, and other organizations such as its International Organization Members, and EOS in two international meeting series: Education and Training in Optics and Photonics (ETOP), and Optics and Computing, later designated as Information Photonics.

Information about the ETOP series, including the Long-Range Guidance, Sponsorship, and Management of ETOP series and instructions for hosting ETOP meetings, can be found from the ICO home pages http://www.ico-optics.org/ under Activities (meeting series)

Information about the Optics in Computing/Information Photonics series, including the Bylaws of the Steering Committee, are available on the ICO home pages http://www.ico-optics.org/ under Activities (meeting series)

PART III:

THE ORGANISATION OF ICO

ICO STATUTES

New statutes have been adopted in 1999; the motivation was to obtain a good representation of the whole optical community within ICO through the addition of the new membership category "International Organisation Member". The European Optical Society, the Institute of Electrical and Electronic Engineer's Laser and Electro-Optic Society, the Optical Society of America, and SPIE – the International Society for Optical Engineering have been accepted for membership in the new category as early as 1999.

Original statutes adopted at Delft, 1948. Amended at Cambridge - 1956, Santa Monica - 1972, Sapporo - 1984, Garmisch Partenkirchen - 1990, Taejon- 1996.
New version adopted by ICO General Meeting, San Francisco, August 2, 1999. Approved by IUPAP, October 1999. Amended by the ICO-21 General Assembly, Sidney,Australia, July 2008.

Article 1 Objective

The objective of the International Commission for Optics (ICO) is to contribute, on an international basis, to the progress of the science of Optics and its applications. It emphasises the unity of the crossdisciplinary field of Optics.

Optics is defined as the field of science and engineering encompassing the physical phenomena and technologies associated with the generation, transmission, manipulation, detection, and utilisation of light. It extends on both sides of the visible part of the electromagnetic spectrum as far as the same concepts apply.
In particular, the ICO promotes international co-operation and facilitates the rapid exchange of informaion, by encouraging and furthering the organisation, on an international basis, of scientific meetings and summer schools. It emphasises actions for the education and training in Optics internationally. It undertakes special actions for the development of optics in regions where particular support is needed. It strives to improve the recognition of Optics as a field of science with a significant impact on economy. It works also for the promotion of international agreements on nomenclature, units, symbols and standards.

Article 2 Affiliation

The International Commission for Optics is an Affiliated Commission of the Union for Pure and Applied Physics (IUPAP) and a Scientific Associate of the International Council for Science (ICSU).

Article 3 Membership

The Commission has three categories of Members.
3a) Territorial Committee Members, that represent identified optics communities in a set of non overlapping geographical areas. A Territorial Committee Member should be listed under a name that avoids any misunderstanding about the area represented. The word "territory" does not imply any political position on the part of the Commission, which seeks to assist scientists in optics everywhere in the world to co-operate on an international level. Each Territorial Committee should receive endorsement of the appropriate authority representing science in its

territory, such as an Academy of Science. In addition, it should either (a) be a subcommittee of the body representing the Member in IUPAP, (b) be recognised by the body representing the Member in IUPAP, or (c) if no such body exists be recognised by the council of IUPAP.

3b) International Organisation members. Such members are membership organisations active in the field of Optics on an international level.

3c) The Commission may also accept organisations active in optics as Associate Members. Associate Members pay no dues and have no voting privileges.

Application for all categories of membership shall be made to the Secretary of the Commission and submitted to the next General Meeting for approval. Applications in the Territorial Committee Member and Associate Member categories may be approved by the Bureau, subject to ratification at the next General Meeting of the Commission.

Article 4 Shares and votes

Each member of ICO has a specified number of shares, which determines its financial contribution as well as its number of votes at the General Meeting.

4a) Each Territorial Committee member whose territory is also a member of IUPAP has the same number of shares, N_{s1}, in ICO as it has in IUPAP. The number of votes N_{v1}, which is also the maximum number of voting delegates of the Territorial Committee Member, is determined according to the IUPAP scale, which presently reads as follows:

Category	number of shares	number of official delegates and votes
I	1	1
II	2 or 3	2
III	4 to 6	3
IV	7 to 9	4
V	10 to15	5
VI	Over 15	6

4b) The number of shares N_{s2} of an International Organisation Member is determined in agreement with ICO during the Membership admission procedure; it may be changed following the same procedures as for membership admission. The International Organisation Members are represented by one voting representative carrying a number of votes N_{v2} proportional to the number of shares N_{s2} of the member determined in such a way that the total number of votes of all International Organisation Members cannot exceed that of all Territorial Committee Members. The exact method for determining N_{v2} is included in the Rules and Codes of Practice.

Article 5 The Bureau

The Bureau of ICO consists of the following.

- the Executive Committee, consisting of the President, the immediate Past-President, the Secretary, the Associate Secretary and the Treasurer. All members of the Executive Committee, except for the Immediate Past-President, are elected by ICO at the General Meeting.
- The IUPAP representative appointed by the Executive Council of IUPAP under Article 7b of the statutes of the Union, and any Associate Members from IUPAP Commissions.
- The other Bureau members, who are traditionally known as Vice-Presidents. Eight Vice-Presidents (at least two of whom are from industry) are elected at the General Meeting by the Territorial Committee Members; in addition, also at the General Meeting, every International Organisation Member appoints one Vice-President up to the limit of eight; if there are more than eight International Organisation Members, eight Vice-Presidents are elected at the General Meeting by the International Organisation Members.

The Bureau is responsible for the conduct of the Commission's business between General Meetings. The term of office of the Bureau is three years from October 1st in the year of the election.

The President will be elected for a term of 3 years, normally after having served 3 years as a Bureau Member. In the event the President is unable to continue his/her duties for the elected term, the Past-President (or in case he/she is unable, the Secretary) will act as interim President, or, with the concurrence of the majority of the Bureau, will appoint one of the Bureau Members as interim President.

The Secretary, Associate Secretary and Treasurer will be elected for a term of three years and will be eligible for a second and usually final term of three more years. If either is unable to continue his/her duties for the elected term, the President will, with the concurrence of the majority of the Bureau, appoint a substitute from among the current Bureau Members.

Other Bureau Members will be elected for 3 years and will be eligible for not more than one further term of three years, except as described in the above two paragraphs.

The Bureau may fill vacancies occurring in its membership during the interval period between General Meetings, except for the position of Immediate Past President.

Article 6 Finance

In addition to money that may be granted by IUPAP, the International Commission for Optics may possess funds of its own consisting of subscriptions from the Members and special donations or grants. Each member pays a number of shares. Dues are payable on the first day of each year. Certain specific projects may be financed independently of the general resources of the Commission. The unit subscription per share is decided by the General Meeting.

Article 7 Withdrawal and Resignation

A member whose subscription is more than six years in arrears is to be regarded as having withdrawn. Any Member which has resigned is liable for the unpaid subscriptions up to the end of the year of resignation. Any Member ceasing to belong to the Commission forfeits its rights to ICO assets.

Article 8 General Meeting

The ICO is governed by its General Meeting, which consists of the Bureau (non voting) and the official delegates appointed by the Members.
The General Meeting of ICO is held every third year. The following business will be carried out at each of these General Meetings:

(a) election of the Bureau;
(b) examination of a Financial Statement presented by the Bureau;
(c) agreement on a provisional budget for future years;
(d) discussion of questions submitted by the ICO Members, the Bureau or the Executive Council of IUPAP.

Any Member, including Associate Members, as well as the ICO President can invite delegates at the General Meeting with no restriction of number. The number of voting delegates is restricted as per article 4.

The President may, with the approval of the Bureau, convene an Extraordinary General Meeting, and shall call such Meetings upon the request of one-third of all ICO Members.

The Draft Agenda for the General Meeting is circulated by the Secretary at least three months before the opening of the General Meeting. Subjects not on the Draft Agenda may be added at the Meeting with the consent of a single majority of the votes of Members represented at the Meeting.

A Member who is unable to send a delegate at a given General Meeting but wishes to vote on appropriate matters appearing on the Agenda may send its vote in writing to the President.

Alternately, it may give a proxy to another member of the same category. To be valid, votes made in writing and proxies must be received prior to the General Meeting.

Article 9 Other Meetings

The International Commission for Optics may sponsor or co-sponsor international conferences and give financial support (grants or guarantees), as a grant to organising committees or as a travelling grant directly to participants.

Article 10 Relation with the International Union of Pure and Applied Physics

(See also Articles 2 and 3)

The Commission will report concerning its work and its financial position to each General Assembly of the International Union for Pure and Applied Physics and will receive directives

from that Assembly. Affiliation of the Commission to the Union can be terminated only by the Union at its General Assembly. In the event of disaffiliation, the special funds of the Commission are to remain its own property, but any unexpected balance of money received from IUPAP shall be returned to that body.

Article 11 Duration of the Commission

The life of the International Commission for Optics is not limited. The dissolution of the Commission may be decided by a majority of two-thirds of the votes of the Members voting at a General Meeting. In this event, the assets of ICO will be allocated by the General Meeting to one or more not-profit organisations of closely similar purposes serving the optical sciences.

Article 12 Alterations to the Statutes

Alterations in the Statutes may be proposed by the Bureau of the Commission, by one of the members, or by IUPAP. Such proposals must be received by the Secretary of the Commission at least three months before the date of the General Meeting.
Amendments or modifications may be adopted only at a General Meeting by a two-thirds majority of the Members taking part in the vote. Alterations of Statutes must be approved by IUPAP, which shall also constitute the final authority in regard to interpretation of Statutes.

Article 13 Rules and Codes of Practice

Rules for the conduct of business determine procedures for dealing with matters not specifically laid down in these Statutes. They are meant to give guidance in general terms to the Bureau and to the Members in matters such as, for example, the provision of grants from the funds of the International Commission for Optics for Symposia and Schools.
The rules and codes of practice may not contravene the Statutes of the ICO. They are proposed by the Bureau. The adoption, modification, or abolition of any rule or code of practice shall require either a majority of two-thirds of the members voting at a General Meeting of the Commission, or alternatively a majority of two-thirds of the total number of votes of all Members in a postal vote on a proposal unanimously approved by the Bureau.

RULES AND CODE OF PRACTICE OF THE INTERNATIONAL COMMISSION FOR OPTICS

Adopted by the ICO–16 General Meeting, Budapest, August 1993.
Modified by the ICO–17 General Meeting, Tajeon, August 1996.
Modified by the ICO–18 General Meeting, San Francisco, August 1999.
Modified by the ICO General Meeting, Florence, August 2002.
Modified by the ICO-20 General Meeting, Changchun, August 2005.

Modified by the ICO-21 General Meeting, Sidney, July 2008.

Modifications approved at the ICO-22 General Meeting, Puebla, August 2011, are italicized.

Article 13 of the statutes of the International Commission for Optics mentions the possibility of establishing rules and codes of practice for ICO. In its meeting in Garmisch Partenkirchen on August 5, 1990, the ICO Bureau decided to setup such rules. These rules replace those adopted earlier and published in previous ICO Green Books such as "Towards ICO-XII", May 1982, pp 69-70.

Article 13 of the ICO statutes: "Rules and Codes of Practice".

Rules for the conduct of business determine procedures for dealing with matters not specifically laid down in these Statutes. They are meant to give guidance in general terms to the Bureau and to the Members in matters such as, for example, the provision of grants from the funds of the International Commission for Optics for Symposia and Schools.

The rules and codes of practice may not contravene the Statutes of the ICO. They are proposed by the Bureau. The adoption, modification, or abolition of any rule or code of practice shall require either a majority of two-thirds of the members voting at a General Meeting of the

Commission, or alternatively a majority of two-thirds of the total number of votes of all Members in a postal vote on a proposal unanimously approved by the Bureau."

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15 - Bureau meetings.

Changes and additions decided by the Bureau, but not yet submitted to the General Assembly for approval, are italicized.

1 - Free Circulation of Scientists:

ICO adheres to the principles established by the International Council of Science (ICSU) concerning the free circulation of scientists. In particular, organisers of ICO meetings and of meetings cosponsored by ICO are requested to follow the "advice to organisers of international scientific meetings" issued by the ICSU Standing Committee on the free circulation of scientists.

Note: the address of ICSU is 51, boulevard de Montmorency, 75016 Paris, France - Telephone: +33 1 45 25 03 29 - Fax: +33 1 42 88 94 31, icsu@lmcp.jussieu.fr, http://www.icsu.org

2 - Membership:

Application

This section complements article 3 of the statutes.

The following are normally provided by a Territorial Committee applying for full membership:
a) if the Territory is represented in IUPAP, a statement from the president of the body representing the Territory in IUPAP, that the Territorial Committee is authorised by that body to

represent optical scientists and engineers of that Territory within ICO; if it is not, a motion to the same effect from a local scientific authority (Ministry, Academy, Council of Research,....);

b) a letter of application signed by the chair person or representative of the applicant Territorial Committee, including a statement of adherence of the Territorial Committee to the ICO Statutes;

c) a description of the organisation of the Territorial Committee, including the number of members, their designation procedure, their term of office, and the procedures that are set up to ensure a good representation of the optics community within the territory. If the Territory is not a member of IUPAP, the Territorial Committee and the ICO Secretary or Associate Secretary shall jointly take the necessary steps to request approval of the Territorial Committee by the council of IUPAP.

The application of a Territory for Associate Membership in ICO shall be made to the Secretary. It may be considered and approved by the Bureau. At the next General Meeting, the decision shall be made
* either, subject to the desire of the applicant, to transform the associate membership into regular membership,
* or to extend the associate membership until the next General Meeting,
* or to terminate the associate membership.

In the case of a Territorial Committee applying for Associate Membership, item a) is required if the Territory is represented in IUPAP; item b) is always required.

The following are normally provided by an International Organisation Member applying for membership (whether as full member or as associate member, except for the number of shares, that applies only to full members):

a) a letter of application signed by the President or its duly appointed representative, mentioning approval by the appropriate bodies in the Organisation, expressing adherence to the ICO Statutes, and including a proposition for the number of shares;

b) a description of the operation of the Organisation, as provided for example by its bylaws, statutes, rules and codes of practice, and showing indication of its international character. This includes the requirement that at least 20% of the members are from outside the most represented country The advice of the Territorial Committee (if any) in the most represented country will be considered.

Organisation and duties of Territorial Committees

The Territorial Committees normally have members elected or designated by some agreed procedure, with a well defined term of office; it is usually convenient for them to have a bureau or at least a chairperson; their organisation secures in all cases:

- a fair representation of the optics community in the Territory;
- approval and support of the scientific authorities of the Territory (Ministry, Academy, council of Research).

The ICO Bureau may at any time request information from the Territorial Committees about their organisation as described above.

Territorial committees maintain mailing lists of at least an extensive representative subset of the optics community in the territory. They will include in the mailing list any bona fide scientist with an address in their Territory and requesting to be included. They distribute at no charge to ICO any document sent to them in an appropriate quantity either by the ICO bureau or on its behalf. This applies in particular to the ICO Newsletter and to the Meetings and Schools with ICO participation.

Number of votes of International Organisation Members:

The number of votes N_{v2} of an International Organisation Member is determined according to its number of shares N_{s2} according to the following formula, rounded to the nearest integer but with a minimum of 1:

$$N_{v2} = N_{s2} \frac{\sum N_{v1}}{\max\left(\sum N_{s1}; \sum N_{s2}\right)}.$$

[Explanation note: e.g., assume the Territorial Committee members together have 200 shares and 100 votes (as is approximately the case in 1999). If the International Organisation Members (IOMs) together have 100 shares, they will have 50 votes (apart from round off errors). If the IOM have 200 shares, they will have 100 votes. If the IOM have 250 shares, they will still have 100 votes and no more. In fact, this is unlikely to happen in the near future, but this rule has been established in response to the concern about the Territorial Committee Members being dominated by the International Organisation Members and loosing control of the ICO.]

3 - General Meetings, votes and elections:

This section complements articles 4 and 8 of the statutes that provide for a General Meeting of ICO every three years. ICO holds a Congress every three years. The ICO Congress consists of a business part, known as the ICO General Meeting, and an International Scientific Conference part.

Sessions:

Tradition holds that General Meetings are held in two sessions with more than 24 hours between the end of the first session and the beginning of the second session.

Attendance in the General Meeting

During any session of the General Meeting, the Secretary circulates a list of attendance. Each attendant signs the attendance list, indicating
* their capacity of ICO Bureau member, official delegate an ICO Territorial Committee, representative of an associate member, member of an ICO Committee, or observer (more than one category may apply);

* their country or ICO territory.

According to article 4 of the statutes, the number of official delegates of ICO Territorial Committees is equal to their respective numbers of votes. The number of official delegates may in no case exceed the number of votes, but if the actual number of official delegates at a General Meeting is smaller than the number of votes, the Territorial Committee still keeps the same number of votes.

Voting procedure:

Except as indicated in articles 8 (agenda of the General Meeting), 11 (duration of the commission), 12 (alterations to statutes) and 13 (alterations of the Rules and Codes of Practice) of the statutes, decisions of the General Meeting, including elections, are by a majority of the votes of the members present and taking part.

Except for the ICO Bureau election, where secret ballot is the rule, the ICO President decides whether votes need to be made by secret ballot. A member having N votes is provided with N ballot forms; this applies to both the Territorial Committee members and the International Organisation members. The member may decide to cast identical ballots or not.

Nomination procedure:

Candidates for the ICO Bureau may be nominated by the ICO nominating Committee (see section 6 below) and/or by the Territorial Committees. No other nomination may be received. The Nominating Committee writes to the Territorial Committees at least one year before the election to request nominations for all positions in the ICO Bureau.

Endorsement of all candidates by their respective Territorial Committees is requested in all cases. In addition, Territorial Committees may endorse candidates from any Territory. At the time of the General Meeting, the delegation of the Territorial Committee to the General Assembly makes endorsements in its name.

Endorsement means that the person is considered by the endorsing Territorial Committee as a good person to stand for an ICO election and is to be understood as an intention, not an obligation, to support this candidate at the election, given the list of candidates at the time the endorsement is made.

The Nominating Committee establishes a first list of candidates that is sent to the territorial Committees along with the agenda of the General Meeting.

Nominations may be received until 24 hours before the election. After the closure of nominations, the Nominating Committee establishes a final list of candidates. In addition, each candidate provides the Nominating Committee with a short curriculum vitae and a statement on his/her policy if elected for distribution to the General Meeting.

Except as provided in this and in the next subsection, there is no official campaign for the ICO Bureau.

Elections for the ICO Bureau:

Bureau Elections are by secret ballot in all cases.

Tradition holds that:

* during the first session of the General Meeting, the Nominating Committee presents its report and indicates the current list of candidates for the ICO Bureau offices;
* elections are held during the second session of the General Meeting;
* for the offices of President, Treasurer, Secretary and Associate Secretary, each candidate is given, immediately before the vote, a short prescribed time (typically between 5 and 10 minutes) to present himself and his/her policy to the General Meeting. If there is only one candidate, that procedure is optional.

The elections are conducted by the chairperson of the Nominating Committee. After each vote, the Nominating Committee counts the votes and during that time, the General Meeting may treat agenda items other than the elections.

In the case of a tie for any vote, the elder candidate is declared elected.

For any vote, if the number of candidates is equal to the number of seats, the Nominating Committee Chairperson may decide that there is no vote and declare the candidate(s) elected.

Concerning the Vice-Presidents, the idea is that eight Vice-Presidents represent the Territorial Committee Members and are elected only by the Territorial Committee Members, while a number of Vice-Presidents represent the International Organisation Members and are elected only by the International Organisation Members. Since it is not advisable to have too many members on the Bureau, the number of Vice-Presidents representing Territorial Committee Members has been set to eight, and the maximum number of Vice-Presidents representing International Organisation Members has also been set to eight.[6]

The votes are held in the following order:
Executive Committee (elected by all members):
* one vote for the President;
* one vote for the Treasurer;
* one vote for the Secretary;
* one vote for the Associate Secretary.

[6] The whole point of having an International Organisation Member category is to give them close contact with the ICO and therefore they are well represented in the Bureau. Nevertheless, their representation in the Bureau cannot exceed that of the Territorial Committee Members. Just like it is impossible for all Territorial Committee Members to have someone on the Bureau, it will also be impossible for all International Organization Members to have someone on the Bureau if their number exceeds eight. While this is a fair rule, it may generate difficulties and frustration if the number of International Organization Members happens to be just slightly larger than eight. If that happens, one option open to the ICO President will be to invite those International Organization Members that have no Vice-President to attend part or all of the Bureau meetings as observers.

Vice-Presidents elected by Territorial Committee Members (only the Territorial Committee Members vote):

- in a first vote, members vote on four (4) names; all candidates are eligible, whether they come from industry or not; if, among the first four (4) candidates ranked by number of votes, no one is from industry, the first three (3) are declared elected; if at least one is from industry, the first four (4) are declared elected;
- if the first vote did not lead to the election of two (2) candidates from industry, a second vote is made, where only candidates from industry are eligible; as a result of this vote, the number of candidates from industry elected is brought to two (2); in that vote, members vote on one (1) or two (2) names, depending on how many candidates should be elected;
- in a last vote, all candidates are eligible, whether they come from industry or not, and the total number of Vice-Presidents is brought to eight; in that vote, members vote on three (3) to four (4) names, depending on how many candidates should be elected.

In every vote, the ballots forms given to the voting members should indicate the number of seats to be assigned by this vote; nevertheless, ballots with a smaller number of votes are valid. On one given ballot form, no name should be written more then once and the ballot form must be explicit about that rule. If nevertheless one name is duplicated, it is counted only once. Ballots containing a number of different names larger than the number of seats to be assigned are not valid.

Tradition holds that for ICO elections, the detail of votes are not made public but are kept by the Nominating Committee Chairperson. Consequently, it is not sensible to repeat votes in order to reach an absolute majority and the applicable majority rule is always the relative majority, i.e. the candidates that have more votes are elected, whether they have reached the absolute majority or not.

*Vice-Presidents representing International Organisation Members (IOM):
For the Vice-Presidents appointed by the International Organisation Members, prior to the General Meeting, every International Organisation Member appoints one representative. If the representative is elected on the Executive Committee or as one of the eight elected Vice-Presidents, the International Organisation Member appoints another representative at its earliest convenience *but no later than September30th.*

- If there are less then eight International Organisation members, their representatives automatically become Vice-Presidents.
- If there are more than eight International Organisation Members, unless a consensus agreement is found among the International Organisation Members, the election of their eight Vice-Presidents takes place last and the candidates are automatically the appointed representatives of the International Organisation Members.

The Nominating Committee contacts the International Organization Members at least six months before the GA to request the appointments.

4 - Classification for the participation of ICO in Meetings and Schools:

There are four categories for ICO participation in meetings and in summer (or fall, or winter, or spring) schools:

1 - ICO General Meetings
2 -Other major ICO events "; whenever appropriate, these events may receive the designation "ICO Special Meeting", "ICO Topical Meeting", "ICO School", "ICO Regional Meeting"
3 - ICO Cosponsored Meetings and Schools
4 - ICO Endorsed Meetings and Schools.
The applicable rules are given in the table on the next page.
Caption: SR: strictly required
UR: usually required
NR: not required
PO: possible
NO: usually not

Any meeting with ICO participation, classified in category 2,3 or 4 may be given by the Bureau the name of ICO Satellite Meetings if it is scheduled to take place within 15 days of an ICO General Meeting or other major ICO event..

Note on registration fees:

As a rule, ICO adheres to the IUPAP upper limit on registration fees. Even though the participation of scientists from disadvantaged areas usually requires special measures independently of the cost of registration, high registration fees tends to limit participation, in particular from students and to be a form of discrimination between scientists.

Specifically, ICO conferences submitted to IUPAP sponsorship must necessarily to follow the IUPAP limit in all cases. These are the General Meetings, Topical Meetings and other major ICO events — usually one per year. For the other events with ICO participation, registration fees higher than the limit can occasionally be accepted provided that an option exists for any scientist to request, at least six weeks in advance, application of the IUPAP limit and still be fully registered, perhaps with the exception of some social events. That option must be known to registrants.

Decision procedure:
The ICO Bureau approves all forms of ICO participation in international conferences, and authorizes the related grants:

* the meeting and school applications are processed twice annually, with the deadlines of applications on April 15 and October 15 of each year
* the applications must be received by ICO Secretariat by a deadline that is at least 12 months prior to the event and before the first announcement
* when the applications are received, the ICO President, Treasurer, and Secretary or Associate Secretary get in touch by some fast procedure and issue a memo including the background information relevant to the meeting. The memo may include a proposition concerning the category of ICO meeting applicable, the opportunity to grant the sponsorship requested, and the opportunity to grant financial support
* reply form is sent to the Bureau members; it includes the proposition
* in any event, if the approval by the relevant Territorial Committee is not clear from the application form, the Territorial Committee is contacted at the same time as the Bureau members and it has a right of veto for 45 days after the letter has been sent; the default is that there is no veto

* no later than one month after application deadline, the decisions are made on the basis of the replies obtained so far from the Bureau members. Only the votes received are counted, the votes not received are not considered as approvals of the proposition of the subcommittee.

ICO CATEGORY	1-ICO General 2-Other major ICO events	3-ICO Cosponsored	4-ICO Endorsed
REQUIREMENTS			
a) ICSU rules on free movement of scientists	SR	SR	SR
b) good scientific quality as perceived by the ICO Bureau	SR	SR	SR
c) international character(typically > 30% participants and > 50% program Committee members from outside territory)	SR	SR	SR
d) industrial participation in Committees	UR	UR	UR
e) registration fee to follow IUPAP rules	SR	UR (see text)	UR (see text)
f) timeliness very clear, novelty	SR	UR	UR
g) participation in the ICO Proceedings Donation Programme	UR	UR	NR
h) approval by Territorial Committee (if there is one)	SR	SR	SR
ICO PARTICIPATION			
h) ICO Secretary or Associate Secretary in Organising Committee	SR	UR	NR
i) ICO designates one member of Programme Committee	SR	SR	UR
j) ICO associated from the beginning (usually at least 18 months in advance)	SR	SR	NR
k) use of ICO logo	SR	UR	PO
l) grant	PO	PO	NO
m) loan (reimbursable whether deficit or benefit)	PO	PO	NO
n) participation in budget, risk and benefits	PO	PO	NO
o) support for participation of scientists from regions of the world requiring special support	PO	PO	PO
p) announcements in Newsletter	SR	SR	PO

q) distribution of documents through ICO channels	SR	PO	NO

Financial participation of ICO:

According to the table above, ICO may give a grant or a loan to meetings and schools of categories 1, 2 and 3. A special form of a grant, that can apply to all categories, is the financial support for the participation of scientists from regions of the world requiring special support. In that case, the amount is usually sent to the organisers with the instruction that they should spend it on financial support to identified scientists from such regions, inform the recipients of the support from ICO and send the list of recipients to ICO; whenever possible, the organisers should be requested to complement the ICO grant, for example by waiving the registration fees for the recipients.

Alternatively, ICO may also wish to take part where practicable in the risks or benefits of meetings and schools of categories 1, 2 and 3. That is possible, if the local law permits, in the following conditions:

* ICO accepts a financial responsibility up to an amount of X;
* the amount X is paid by ICO to the meeting organisers in the form of a treasury advance; it is made available to the organisers by the ICO Treasurer as soon as they request it;
* at the closing of the account and in no case later than one year after the meeting is finished, if there is a deficit:

- if the deficit is smaller that X, ICO will cover it in its entirety, i.e. the organisers will only have
- to reimburse ICO the difference;
- if the deficit is larger than X, then ICO will cover it for an amount X, i.e. no money will be
- reimbursed to ICO;
- if there is a surplus:
- if the surplus is smaller than 4X, ICO will receive 25 % of the surplus, i.e. the organisers will
- reimburse ICO the amount X plus a quarter of the surplus;
- if the surplus is larger than 4X, the organisers will reimburse ICO two times X.
- Depending on circumstances, slight modifications to this scheme may be made by the Bureau.

Any given Bureau may approve meeting support up to the triennial Meeting Support budget for the triennium of its term, augmented with any return from previously granted participation in risk. Loans are not counted and are limited only by the approval of the Treasurer based on the account balance. There is continuity in the ICO Bureau, therefore the Bureau may approve meetings to be held after the next Bureau elections.

5 - Relations with IUPAP:

IUPAP, at each of its General Meetings designates one Representative to ICO. The IUPAP Representative takes part in the ICO General Meeting.

ICO will normally request sponsorship by IUPAP of its General and Topical Meetings.

ICO will normally request to have associate members in some IUPAP Commissions, as appropriate to maintain close relations.

6 - ICO Committees:

List of ICO Committees:

In order to assist the General Meeting and the Bureau in their activities, ICO has established the following committees:
* Nominating Committee
* Long Range Planning Committee
* Committee for the Regional Development of Optics
* Education Committee
* Travelling Lecturer Committee
* ICO Prize Committee
* ICO Galileo Galilei Award Committee
* ICO/ICTP Gallieno Denardo Award Committee
* *IUPAP Young Scientist Prize in Optics Committee*

Duties of the committees:

The specific purpose of each committee is indicated below. Committees report on their activity at each General Meeting and, as appropriate, at each meeting of the Bureau.
* The purpose of the Nominating Committee is to coordinate the elections of the Bureau.
* The purpose of the Long Range Planning Committee is to propose suitable new actions for ICO, with suitable attention for the inclusion of industrial optics in ICO's activities.
* The purpose of the Committee for the Regional Development of Optics is to find and implement actions whereby ICO can promote the transfer of optical knowledge and provide practical help to optical scientists and engineers in Developing Nations and in general, geographical areas where optics is not well developed.
* The purpose of the Education Committee is to promote education in Optics worldwide.
* The purpose of the Travelling Lecturer Programme Committee is indicated in section 7 below.
* The purpose of the Standards Committee is to serve as a channel of communication for work on standards in optics, in relation with ISO.
* The purpose of the ICO Prize Committee is indicated in section 9 below.
* The purpose of the ICO Galileo Galilei Award Committee is indicated in section 10 below.
***** The purpose of the ICO/ICTP Gallieno Denardo Award Committee is indicated in section 11 below.
** The purpose of the IUPAP Young Scientist Prize in Optics Committee is indicated in section 12 below.*

Membership of the Committees:

Each committee has a chairperson and members. The following rules apply:
a) The chairperson of all ICO committees is always a member of the ICO Bureau.
b) The ICO past-President is ex officio the chairperson of the Nominating Committee and the members are appointed by the chairperson.
c) The ICO President is ex officio the chairperson of the long range planning Committee and the members are appointed by the chairperson.
d) The ICO Treasurer is ex officio the chairperson of the Travelling Lecturer Committee.
e) The ICO Secretary or Associate Secretary is ex officio member of all Committees except the Nominating Committee, the Long Range Planning Committee and the ICO Prize Committee.
f) Except for the cases of rules b, c, and e above, the members are proposed by the chairperson and appointed by the Bureau. To avoid delays in the operation of Committees, the appointment of members by the Bureau can be made by mail.

7 - ICO Travelling Lecturer Programme:

ICO has established in 1988 a Travelling Lecturer Programme to promote lectures on modern aspects of optics in interested territories by scientists of international reputation with good lecturing skills. The program is aimed specially at developing nations, but is not necessarily restricted to them. As a rule, it is expected that the lecturer's local expenses will be met by the host institution and that ICO's contribution will be towards the travel costs. Scientists or host groups interested in participating in this program should write to the Treasurer of ICO with details of the proposed lecture program and ICO support requested.

Within the financial limits of the budget, an ICO Committee, with the ICO Treasurer as chairperson, decides for the ICO Travelling Lecturer grants. This Committee in principle does not meet, but works by mail and telecommunication facilities so as to secure the fastest response compatible with good operation.

8 - ICO Book:

ICO has established in 1990 a series of books: the title "International Trends in Optics" has been chosen for the series. There is one volume every three years. The ICO President, the ICO past-President, or one of the ICO former Presidents, acts as the editor.

The books are intended to provide an authoritative overview of research that is underway in the field of optics throughout the world. The articles should be suitable for the specialist and non-specialist alike and should provide general, readable overviews of many different aspects of optical science and engineering. They should tend to be less formal than the standard technical reviews found in journals. In addition to examining their designated topics, the authors should also discuss unsolved research problems and speculate on future directions in their fields.

The royalties typically paid to the editor and the authors are instead paid to ICO.

9 - ICO Prize:

ICO has established in 1982 the ICO Prize, to be given each year to an individual who has made a noteworthy contribution to optics, published or submitted for publication before he or she has

reached the age of 40. (Specifically, the Prize winner must not have reached the age of 40 before December 31 of the year for which the Prize is awarded). The character of the work of successive Prize recipients should preferably alternate between predominantly experimental or technological and predominantly theoretical. The "noteworthy" contribution in optics is measured chiefly by its impact (past or possibly future) on the field of optics generally, opening a new subfield or significantly expanding an established subfield in research or technology.

The ICO Prize involves:

- a citation,
- a cash award of an amount established in the triennial budget of the ICO and indicated every year in the call for nominations
- travel support to attend said meeting to an amount to be determined by the Bureau[7],
- waiver of registration fees at said meeting
- and the invitation to present an invited paper and receive the award at the next ICO Congress or another ICO meeting mutually agreed to by the Bureau and the award winner.[8]

Every year, the ICO Prize Committee issues a call for nominations that is published in the ICO Newsletter, receives the nominations and selects the recipients for approval by the Bureau at its next meeting. The award needs not be made each year if the Prize Committee so chooses. The Prize is preferably given to an individual, but it can be shared by two persons. Eligibility for the Prize is not excluded by previous prizes awarded to the individual. The selected Prize winner is then announced in the ICO Newsletter and, if possible, in one or more optics journals. The prizes are presented at each ICO General Meeting.

10 - ICO Galileo Galilei Medal:

10.1 - The Galileo Galilei medal of ICO is awarded for outstanding contributions to the field of optics which are achieved under comparatively unfavourable circumstances.

10.2.1 - The outstanding contributions in the field of optics should refer to:
- fundamental scientific questions or problems, or
- research or development of optical methods or devices, or
- scientific or technical leadership in the establishment of regional optical centres.

10.2.2 - "Comparatively unfavourable circumstances" refers to difficult economic or social conditions or lack of access to scientific or technical facilities or sources of information.

10.2.3 - The outstanding contributions must be documented, if applicable, by internationally acknowledged publications. Exceptionally, reports can be considered, provided that they are made available to the Award Committee.

10.3 - The award is normally given to one person. Exceptionally, however, if a collective contribution is judged to be worthy of the award a team of several persons may be selected.

10.4 - Every year, the ICO Galileo Galilei Award Committee issues a call for nominations that is published in the ICO Newsletter, receives the nominations and selects the

[7] For 2008-2011, these amounts are a cash award of US$2000 and up to US$1000 towards travel expenses.

[8] In addition, the Carl Zeiss foundation has generously agreed to donate an Ernst Abbe medal.

winner for approval by the Bureau at its next meeting. The award need not be given every year if the Bureau so chooses.

10.5 - The award consists of:

a) the Galileo Galilei Medal offered by the Italian Society for Optics and Photonics
b) a cash award of an amount determined by the Bureau
c) assistance in travel as determine by the Bureau[9] to present an invited paper and receive the award at the next ICO Congress or another ICO meeting mutually agreed to by the Bureau and the award winner[10],
d) waiver of registration fees at said meeting
e) special attention and appropriate measures of ICO to support the future activities of the award winner.

11 – ICO/ICTP Gallieno Denardo Award for Young Researchers from Developing Countries:

Approved by ICTP, August 1999. New agreement approved by ICO and ICTP, November 2007.

ICO, the International Commission for Optics, and ICTP, the Abdus Salam International Centre for Theoretical Physics, Trieste, have agreed to establish a joint prize, called the ICO/ICTP Award. It is reserved for young researchers from developing countries[11], who conduct their research in a developing country.
The award will be given to scientists less than 40 years old[12] who are active in research in Optics and have contributed to the promotion of research activities in Optics in their own or another developing country.

The award consists of the following:

1) the ICO gives a cash amount[13] and a diploma.
2) The ICTP invites the winner to attend a three weeks College[14] at Trieste at the next appropriate opportunity, and to give a seminar on his/her work when appropriate. ICTP will pay for travel and living expenses.

The award will be delivered to the winner at Trieste in the presence of representatives of ICO and ICTP.

[9] For 2008-2011, these amounts were: a cash award of US$1000 and up to US$1000 towards travel expenses.
[10] The Società Italiana di Ottica y Fotonica (SIOF) has generously agreed to donate the Medal for a number of years.
[11] Developing Countries are defined by the list of Developing Countries of the United Nations Organisation.
[12] Specifically, the winner must not have reached the age of 40 on December 31st of the year for which the award is given.
[13] *For 2008-2011, the amount is US$1000.*
[14] *The ICTP in Trieste organises a Winter College on Optics, or Laser Physics, or Photonics, or Quantum Optics once a year, normally three weeks in February. The Winter Colleges are currently organised in cooperation with the ICO, OSA (Optical Society of America), SPIE and OWLS.*

The award is given to one person every year. The winner is selected on the basis of nominations received by the Award Committee in response to a call published by both ICO and ICTP. The Award Committee consists of four members, of which two are appointed by ICO and two by ICTP for a period of three years. Among the four members, ICO appoints the Committee Chair.

The nominations must be documented by a complete curriculum vitae including a list of publications and selected reprints (no more than three) as well as a complete employment history and a description of the nominee's achievements for the promotion of research activity in developing countries.

Since February 2008 the award has the new definitions as ICO/ICTP Gallieno Denardo Award honouring the memory of the late Prof. Gallieno Denardo.

12 – ***IUPAP Young Scientist Prize in Optics****:*

The IUPAP Young Scientist Prize in Optics is an achievement prize established in 2009. It is an IUPAP prize administered by the ICO in a similar manner as the ICO's own prizes and awards.
General rules
The IUPAP Young Scientist Prize in Optics will be awarded annually to a scientist who has made an outstanding contribution to the field of applied optics and photonics and who by the end of the year in which the prize is given has a maximum of eight years of research experience (excluding any career interruptions) after obtaining the doctoral degree. The contribution, which is measured by its scientific impact, must be clearly documented. The IUPAP Prize is strictly an achievement award for an individual in early career. The Prize will be awarded at an ICO conference that is endorsed by the IUPAP.
The IUPAP Prize involves

a) An IUPAP Young Scientist Medal, with the name and discipline (Optics) of the recipient engraved on the back. The medal is prepared by the IUPAP and its front side is the same for all Commissions and Affiliated Commissions.
b) A certificate containing the citation (with a maximum of 100 words).
c) A cash award determined by the IUPAP.[15]

The recipient is expected to deliver an invited presentation at a major ICO conference and it is recommended that the registration fee for the awardee be waived. Additional travel support can be obtained from other sources but it cannot be used to increase the amount of the cash award.
Nomination and selection procedure
For each triennial period the ICO appoints an IUPAP Prize Committee. Every year the ICO issues and distributes a call for nominations with a nomination deadline. The nominations are to be made in accordance with the general instructions as published on the ICO website. The Prize Committee evaluates the nominations and recommends a winner for the approval of the ICO Bureau. The Prize need not be given every year if the Prize Committee or the Bureau so decide.
Eligibility for the IUPAP Prize is not excluded by previous prizes that may have been awarded to the individual. Provided the time limitations are satisfied, unsuccessful nominations are considered for two subsequent years after the initial nomination, but the Nomination Committee may ask for updates of the nomination documents. After three years, a re-nomination can be

[15] During the triennial period 2009-2011, the amount is € 1,000.

made if the eight-year time limit is met. The nomination and selection procedure must overall be fair and open.

*13 – **FISCAL SPONSORSHIP GRANT AGREEMENT BETWEEN THE OSA FOUNDATION AND***
THE INTERNATIONAL COMMISSION FOR OPTICS

On _____, 2010, the OSA Foundation (Grantor) decided that financial support of the project described in the grant proposal application accompanying this Agreement will further Grantor's tax-exempt purposes. Therefore, Grantor has created a restricted fund designated for such project, and has decided to grant all amounts that it may deposit to that fund, less any administrative charge as set forth below, to the International Commission for Optics (Grantee), subject to the following terms and conditions:

***WHEREAS**,*

F. Grantee is an exempt organization under Section 501(c)(4) of the Internal Revenue Code, and may apply for exemption from federal income tax under Section 501(c)(3) of the Internal Revenue Code at some point in the future

G. The purpose of Grantee is the following: to contribute, on an international basis, to the progress and diffusion of knowledge in the field of optics.

H. Grantor is exempt under Section 501(c)(3) of the Internal Revenue Code and is not a private foundation under Section 509(a)(1) of the Internal Revenue Code. Grantor would like to support certain activities of Grantee and is willing to act as a fiscal sponsor for Grantee. Grantor will accept contributions for the benefit of ICO by those contributors who wish to support Grantee prior to Grantee's obtaining federal tax exempt status (the "Fiscal Sponsorship").

I. Grantor anticipates terminating the Fiscal Sponsorship should the Grantor receive an advance ruling that it is exempt under Section 501(c)(3) of the Internal Revenue Code.

J. Grantor and Grantee have a shared mission, and Grantor has determined that the purposes and activities of ICO are charitable under Internal Revenue Code Section 501(c)(3). The success of ICO will benefit the mission of the Fiscal Sponsor.

***NOW, THEREFORE**, in consideration of the foregoing recitals and the promises contained herein, and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties, intending to be legally bound, agree as follows:*

13. Term. This Agreement shall be effective starting [INSERT DATE] and shall remain in force until Grantee receives its designation from the Internal Revenue Service as a 501(c)(3) tax-exempt organization, or it is terminated in accordance with the terms of this Agreement, whichever is sooner.

14. Grantee shall provide Grantor with its governing documents, a completed and filed IRS Form SS-4 or other documentation satisfactory to Grantor, showing Grantee's

separate existence as an organization.

15. *Use of Funds. Grantee shall use the grant solely for the project described in the accompanying grant proposal application, and Grantee shall repay to Grantor any portion of the amount granted which is not used for that project. Any changes in the purposes for which grant funds are spent must be approved in writing by Grantor before implementation. Grantor retains the right, if Grantee breaches this Agreement, or if Grantee's conduct of the project jeopardizes Grantor's legal or tax status, to withhold, withdraw, or demand immediate return of grant funds, and to spend such funds so as to accomplish the purposes of the project as nearly as possible within Grantor's sole judgment. Any tangible or intangible property, including copyrights, obtained or created by Grantee as part of this project shall remain the property of Grantee.*

16. *Fundraising. Grantee may solicit gifts, contributions and grants to Grantor, earmarked for Grantor's restricted fund for this project. Grantee's choice of funding sources to be approached and the text of Grantee's fundraising materials are subject to Grantor's prior written approval. All grant agreements, pledges, or other commitments with funding sources to support this project via Grantor's restricted fund shall be executed by Grantor.*

17. *Nothing in this Agreement shall constitute the naming of Grantee as an agent or legal representative of Grantor for any purpose whatsoever except as specifically and to the extent set forth herein. This Agreement shall not be deemed to create any relationship of agency, partnership, or joint venture between the parties hereto, and Grantee shall make no such representation to anyone.*

18. *Reporting Requirement. Grantee shall submit a full and complete report to Grantor sixty (60) days after the completion of the grant program. Periodic program updates may be requested for programs lasting more than three months. The report shall describe the charitable programs conducted by the Grantee with the aid of this grant and the expenditures made with grant funds, and shall report on the Grantee's compliance with the terms of this grant.*

19. *Termination. Either party may terminate this Agreement by giving sixty (60) days' written notice to the other party.*

20. *This grant is not to be used in any attempt to influence legislation within the meaning of Internal Revenue Code (IRC) Section 501(c)(3).*

21. *Grantee shall not use any portion of the funds granted herein to participate or intervene in any political campaign on behalf of or in opposition to any candidate for public office, to induce or encourage violations of law or public policy, to cause any private inurement or improper private benefit to occur, nor to take any other action inconsistent with IRC Section 501(c)(3).*

22. *Grantee shall notify Grantor immediately of any change in:*

(a) Grantee's legal or tax status, and
(b) Grantee's executive or key staff responsible for achieving the grant purposes.

23. *Grantee hereby irrevocably and unconditionally agrees, to the fullest extent permitted by law, to defend, indemnify and hold harmless Grantor, its officers, directors, trustees, employees and agents, from and against any and all claims, liabilities, losses and expenses (including reasonable attorneys' fees) directly, indirectly, wholly or partially arising from or in connection with any act or omission of Grantee, its employees or agents, in applying for or accepting the grant, in expending or applying the funds furnished pursuant to the grant or in carrying out the program or project to be funded or financed by the grant, except to the extent that such claims, liabilities, losses or expenses arise from or in connection with any act or omission of Grantor, its officers, directors, trustees, employees or agents.*

24. *General.*

a. *Notices. All notices, demands, amendments, waivers, consents, approvals, and other communications required or permitted under this Agreement must be in writing and expressly reference this Agreement.*

b. *Amendments; Waivers. All parties must approve any amendment to this Agreement, however, any waiver of any right or remedy requires only the consent of the party waiving it. Every amendment or waiver must be in writing and designated as an amendment or waiver, as appropriate. No failure by any party to insist on the strict performance of any provision of this Agreement, or to exercise any right or remedy, will be deemed a waiver of such performance, right or remedy, or of any other provision of this Agreement.*

c. *Severability. If any provision of this Agreement, or the application thereof, becomes or is declared by a court of competent jurisdiction to be illegal, void or unenforceable, the remainder of this Agreement will continue in full force and effect and the application of such provision to other persons or circumstances will be interpreted so as reasonably to effect the intent of the parties hereto. The parties further agree to replace such void or unenforceable provision of this Agreement with a valid and enforceable provision that will achieve, to the extent possible, the economic, business and other purposes of such void or unenforceable provision.*

d. Entire Agreement. This Agreement shall supersede any prior oral or written understandings or communications between the parties and constitutes the entire agreement of the parties with respect to the subject matter hereof. This Agreement may not be amended or modified, except in a writing signed by both parties hereto.

e. Counterparts. This Agreement may be executed in one or more counterparts, all of which are considered one and the same agreement and will become effective when one or more counterparts have been signed by each of the parties and delivered to the other parties, it being understood that all parties need not sign the same counterpart. A facsimile signature page will be deemed an original.

f. *Governing Law*. *This Agreement shall be governed by and construed in accordance with the laws of the State of New York applicable to agreements made and to be performed entirely within such State.*

IN WITNESS WHEREOF, the parties have executed this Grant Agreement effective on the _____ day of _____, 200__.

OSA FOUNDATION	*INTERNATIONAL COMMISSION FOR OPTICS*
By:	*By:*
Print Name:	*Print Name:*
Title:	*Title:*

14 - **ICO Proceedings Donation Programme:**

Territorial Committees and scientists from countries that are preparing for ICO membership may request to receive copies of the Proceedings volumes issued on the occasion of meetings participating in the ICO Proceedings Donation Programme. At least all ICO General, Topical, Regional and Cosponsored Meetings participate in the Programme. These proceedings will be kept in a scientific library open to all researchers and engineers working in optics. The cost of printing and shipping will be born by the organisers of the meetings. The ICO Secretariat will keep the mailing list and send the appropriate mailing labels in due time to the meeting organisers. In view of the expenses involved, there will be a limit of one address per ICO Member Territory and one address per country preparing for ICO membership. In addition, it is expected that Member Territories and countries where the access to scientific literature is relatively satisfactory will refrain from requesting to benefit from the Programme.

15 - ICO Bureau Meetings:

The ICO Bureau meets typically one time per year in the years without a General Meeting, and in addition once immediately before and once immediately after every General Meeting

THE ICO TERRITORIAL COMMITTEES
ICO MEMBERSHIP LIST, JULY 1, 2011

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International Society on Optics Within Life Sciences
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Optical Society of America
Units: 5, votes: 3, member since 1999
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SPIE
Units: 5, votes: 3, member since 2000
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Miscellaneous:

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C15, Atomic and Molecular Physics and Optical Physics: Prof. A. Guzmán
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IUPAP Triennial General Assembly, annual IUPAP Council and Chair meetings: Prof. Ari T. Frinerg (Past-President) or Prof. Maria L. Calvo (President).

ICSU links and General Assembly: Prof. Maria L. Calvo.

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2005-2008

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PART IV:

THE 2011 GENERAL MEETING

MINUTES OF THE 21ST GENERAL ASSEMBLY OF THE INTERNATIONAL COMMISSION FOR OPTICS

Held on July 7th and 9th, 2008 in Sydney, Australia

The President of the Commission, Prof. A. T. Friberg, was in the chair and the following were present:

ICO Bureau:

Past-President	R. Dändliker
Secretary	M.L. Calvo
Associate Secretary	G. Von Bally
Treasurer	A. Sawchuk

M. Gu, A. M. Guzman, G. F. Jin, B. Y. Kim, M. Kujawinska, J. Love, G. Sincerbox, P. Stahl, J. Braat (represented by P. Török), A. Wagué, I. C. Khoo, I. Yamaguchi

Apologies for absence have been received from S. Bagayev, P. Chavel, and H. Lefèvre.

Delegates and Observers:

Argentina	H. Rabal, R. Torroba, M. Tebaldi (o), G. Romero (o), N. Bolognini (o)
Australia	J. Love (2), K. Baldwin (2)
Belgium	*No delegate attended*
Belarus	*No delegate attended*
Brazil	J. Frejlich
Canada	*No delegate attended*
Chinese Optical Society	Mu Guoguang, Zhou Bingkun, Jin Guofan, Gong Qihuang
Columbia	A. Guzman
Cuba	Represented by Committee of Columbia
Czech Republic	M. Hrabovsky, P. Horvath
Denmark	*No delegate attended*
Ecuador (a)	*No delegate attended*
Estonia	V. Palm

Finland	A.T. Friberg,
France	C. Montes (o)
Germany	G. Von Bally
Ghana / West Africa	A. Wagué
Greece	C. Fotakis (1)
Hungary	*No delegate attended*
India	C. S. Narrayanamurthy
Indonesia	*No delegate attended*
Ireland	*No delegate attended*
Islamic Republic of Iran	*No delegate attended*
Israel	*No delegate attended*
Italy	G. Righini, S. Pelli
Japan	I. Yamaguchi, T. Yataga, S. Kawata (1), K. Matsuda (2), Y. Ishii (2
Korea	B.Y. Kim, B. Lee
Latvia	Represented by Committee of Estonia
Lithuania	*No delegate attended*
Mexico	F. Mendoza, F. Granados
Moldova	*Not delegate attended*
Morocco*(a)	*No delegate attended*
Netherlands	M.J. Bastiaans (o)
New Zealand	*No delegate attended*
Norway	*No delegate attended*
Optical Engineering Society in Taipei, China	*No delegate attended*
Poland	M. Kujawinska
Romania	Represented by Committee of Spain
Russia	A. Pavlov (2)
Singapore	C. R. J. Sheppard
Slovak Republic	Represented by Czech Committee
Spain	M. S. Millán, M.L. Calvo
Sweden	*No delegate attended*
Switzerland	R. Dändliker
Tunisia	*No delegate attended*
Turkey	*No delegate attended*
Ukraine	S. Kostynkevych
United Kingdom	C.J.R. Sheppard
United States of America	I. C. Khoo, A.A. Sawchuk, D. T. Moore, J. Harrington, P. Stahl
Venezuela	Represented by Committee of Columbia
EOS	P. Török
IEEE LEOS	R. Linke, I. C. Khoo, R. Links
LAM Network*	A. Wagué
OSA	G. Sincerbox, K. Apter, E. Rogan
OWLS*	G. Von Bally
SPIE	P. Stahl, K. Plenkovich

(1) First session only
(2) Second session only

(o) Observer
(*) Conditioned to designation of new representative
(a) Associate Member

The items were distributed between the first and second sessions as follows:

First Session, Monday, July 7th, 4:15 PM – 6:00 PM

1 Minutes of the 20th General Meeting
2 Matters arising from the 20th General Meeting
3 Report of the President for 2005-2002
4 Report of the Secretary-General for 2005-2002
5 Finance (a) Treasurer's Report
(b) Proposed budget 2008-2011
(c) Unit subscription in 2008-2011
6 Changes in the ICO Rules and Code of Practice
7 Admittance of new members
8 Reports of ICO Committees (a) Nominating Committee

Second Session, Wednesday, July 9th, 4:30 PM- 6:30 PM

10 Date and venue of the General Meeting ICO XXII
8 Reports of ICO Committees, continued
(b) Committee for the Regional Development of Optics
(c) Traveling Lecturers Committee
(d) ICO Prize Committee
(e) ICO/ICTP Award Committee
(f) ICO Galileo Galilei Award Committee
(g) ICO Education Committee
(h) ICO Standards Committee
9 Conferences with ICO participation
11 Late nominations for the ICO Bureau Elections
12 ICO Bureau Elections for the term 2008-2011
13 Other business

Opening Session

A. T. Friberg, President, welcomes the participants and expresses thanks to the organizers of the ICO XXI Congress. It is remarkable that this is the first time that an ICO General Meeting and General Assembly take place in the Southern hemisphere. This is an indication that ICO is focusing its role on the promotion of optics and photonics all over the world and to maintain its lemma: “ICO, the place where the optics world meets”. Speaking on behalf on the entire ICO Bureau, Prof. A. T. Friberg thanks to the members who have now completed their two terms and will be therefore leaving the Bureau: R. Dändliker, Past President and Chair of the Nominating Committee, G. F. Jin, B. Y. Kim Chair of the ICO Prize, M. Kujawinska Chair of the Education Committee, I. Yamaguchi Chair of the ICO Galileo Galilei Award Committee. Moreover, it is expected that their contributions will continue as an appreciate collaboration.

First Session

1 Minutes of the ICO-20 General Assembly

The minutes were approved unanimously.

2 Matters arising from the ICO-20 General Assembly

None

3 Report of the President for 2002-2005 and report of the Long Range Planning Committee

A. T. Friberg, President, reviews the main ICO activities during the triennium (an extensive report can be found in the Green Book on pp. 2-9):

ICO is nowadays a United Nations of Optics. The internationality comes from both the International Societies and the Territorial Committees. Also, since October 2005 ICO is a Scientific Associate to the International Council of Science (ICSU) and as such to UNESCO and UN. This new status will be considered by the General Assembly. ICO has set a firm basis for its role in impacting the explosive growth of optics and photonics as a major technical field positively influencing both our quality of life as well as being an economic stimulus for the 21st Century. ICO activities are spread out from the current links with international bodies IUPAP, ICSU, UNESCO, ICTP and current IS represented at the ICO Bureau. This is manifested by the collaboration in the ICO-21 General Congress. As other activities, ICO has edited the volume Nr. Six on Advances in Information Optics and Photonics and published by SPIE. The revenues obtained from the sales of the book will be applied to the ICO Traveling Lecturer Program as well for Grant activities.

Developing countries:

ICO continues to focus many of its activities on critical regional areas and needing an enhancement as well with local industries. It has participated in initiatives in Latin America, supporting the RIAO/OPTILAS series of meetings and ICO Regional meetings. ICO is very much concerned on Africa, and the various African regions to participate in future actions for the promotion of Optics in addition to the existing series of ICO cosponsored conferences. In 2007 the ICO Topical meeting was held in Ghana. ICO has continued its close cooperation with the ICTP (The International Center for Theoretical Physics) optics programs in Trieste, initiated and promoted by the late Gallieno Denardo. There is a particular concern in solving the difficulties to promote optics entrepreneurship in developing countries. In the forthcoming triennium efforts have to be done to increase these activities.

Global promotion of Optics:

The ICO has improved its global coverage by increasing its member basis up to 48 Territorial Committees, 2 Associate members and 6 International Societies. ICO appreciates the

participation of International Society Member, and this has proved a fruitful initiative initiated in 1999.

The ICO has also applied its traditional policy of recognizing optics related achievements on an international basis through several awards including the ICO Prize, the Galileo Galilei Award and the Gallieno Denardo ICO/ICTP Award.

ICO supported conferences and schools:

ICO cosponsored or endorsed during the last 3 years period more than 30 conferences and schools. ICO supports, in collaboration with the SPIE and OSA, the Conference on Education and Training in Optics and Photonics, most recently convened during 2007 in Ottawa, Canada.

As main future objective there must be a line of future tasks:

– Improve efficiency (reduce costs) of ICO Newsletter distribution with the help of the TCs

– Improve interaction with the Territorial Committees (special activities)

– Develop and improve the efficiency of Regional Development activities (main task of ICO)

4 Report of the Secretary-General for 2005-2008

ICO Secretariat is the common house for all the members and associated ones. It is having as a main objective to focus on the vision statement: "ICO, the place where the optics world meets" and thus to contribute to the progress and spread of knowledge of optics. ICO Secretariat considers that it has to focus many of its activities on two priority areas: a) developing countries, and b) education and training in optics.

The long-standing collaboration with the ICTP, the Abdus Salam International Centre for Theoretical Physics in Trieste results in common activities, including the annual "Winter College on Optics" in Trieste. ICO Secretary also contributes to the dissemination of information of the three awards: ICO Prize, ICO Galileo Galilei Award and Gallieno Denardo ICO/ICTP Prize, specially aimed at recognising noteworthy achievements of researchers in parts of the world where the development of optics and photonics requires special support, and to young researchers. The latter definition was approved by the ICO Bureau to honour the memory of the late Prof. Gallieno Denardo responsible of optics and photonics programs at the ICTP. Posters with information of these three awards have been edited and sent to Territorial Committees and are available from ICO web site. There is also an interest in the participation in the optics activities in Africa.

The Secretariat is also playing a role in establishing a unified series of international optics meetings in Spanish and Portuguese speaking countries. It is contributing as well in International topical meetings on Education and Training in Optics and Photonics (ETOP), whose tenth edition was held in 2007 in Ottawa (Canada). Recently, IEEE/LEOS has joined the partnership along with ICO, OSA and SPIE.

The secretary maintains the information database on members. There are currently 47 Territorial Committees (TC) and 2 more applications have been received one from Associate Member and another for full membership for new TC. The bureau has approved 2 of them. It is mentioned that some of the Territorial Committee members sometimes overlook to update the composition of their Committee or board when elections for a new term are held. Also, the ICO would like to have a copy of the operating rules (statutes, bylaws, etc.) used by its members.

This is now a requirement for all new membership applications, but some of the more faithful members of ICO apparently never provided the information. The basic rules of Territorial Committees are that they must be representative of and maintain contacts with the Optics and Photonics community in their geographical Territory, they must be acknowledged by science authorities in their country.

Because of the close contacts between ICO and IUPAP (the International Union of Pure and Applied Physics), they should also have well defined working relations with the Physics community in their territory. The duties of Territorial Committees include the distribution of the Newsletter to their mailing list inside their territory, providing electronic links to web site if existing, the distribution of ICO meeting announcements, and the communication about Optics, its growth, and its importance. ICO website has been hosted and altruistically maintained by SPIE since1996. The site is updated regularly with the latest newsletters, new events, and other pertinent information.

The Newsletter, the ICO periodical publication is edited by ICO Secretariat, with four issues/year: January, April, July and October. It consists of two pages edition containing news on ICO sponsoring of meetings, schools, etc. News on Territorial Committees and ICO activities: Traveling Lecturer Program, ICO Prize, ICO Galileo Galilei Award, Gallieno Denardo ICO/ICTP Award, and other relevant events. Started in March 1989 it has been published and distributed by OSA up to 2004, under Black & White edition. In 2004 a new bid was received from IoPP for new design and color edition for the year 2005 at a lower cost. This agreement with IoP has been renewed for the current term 2005-2008. Currently, the distribution task to ICO Territorial Committee Members has been assumed by ICO Secretariat to reduce mailing costs and is now carried out by IoP. The electronic files of all issues are available at the ICO web site. Publicizing of ICO NL is requested to all IS: EOS, IEEE/LEOS, LAM, OSA, OWLS, SPIE, include versions of ICO NL on its own Magazine and websites. Local Optical Societies (LOS) are requested to link the ICO NL at their websites, but certainly improvements in coordinating this activity need to be enhanced. Other link is at the Institute of Physics (IoP).

Edited and distributed by ICO Secretariat every three years prior to the General Assembly, the so-called "Green Book" is the ICO publication of reference including the activities developed in the determined period. Copies are mailed by July of the year of issue to all Territorial Committees and ICO Bureau members. The book: *"Towards ICO-21"* was published in 2008, by the Institute of Physics Publishing (IoPP) with a good edition, quality and design results. For the first time CD's version was also delivered to TC.

During the period 2005-2008 ICO Secretariat has various institutional relationships: CYTED (Ciencia y Tecnología para el Desarrollo; *Science and Technology for Development*), to create an Ibero-American network on optics. The ICTP, International Center for Theoretical Physics, Institute of Physics Publishing (IoPP), the International Color Association (ACI), the Spanish Committee of ICSU at the Spanish Ministry of Science and Innovation. All of this in addition to the regular contacts with OSA, SPIE, EOS, LAM, IEEE/LEOS, OWLS and IUPAP inside ICO Bureau and ICSU.

ICO is having the support of IUPAP and other relevant international organizations to secure support toward the official consideration of Optics and Photonics as a discipline. There are major reasons for this initiative: i) Amount of research published in high-level international journals and periodicals. ii) Impact on new technological resources with strong connection with

industry and improvement of the quality of life. iii) Education in areas of Applied Physics and Engineering currently involving Colleges, Schools, Faculties, pre-doctoral, post-doctoral and Young Researchers training and highly interdisciplinary. Resume on Secretariat budget is also presented.

The Secretary concludes her report by reminding attendees, and in particular candidates for the election of the future ICO Bureau, that ICO does not operate like its larger International Organization Members: expected and compulsory help to the secretary, while appreciated, is very small, and all Bureau members are not only encouraged to provide guidance and advice, but also to act themselves on specific issues assigned to them. At the time of leaving the Secretariat, after two terms ICO Secretary acknowledges ICO Administrative Secretary (R. de Cecilio) and colleagues from the Faculty of Physics, Complutense University of Madrid for the support accorded

5 Finance

(a) Treasurer's Report

A. Sawchuk, Treasurer, reports on the financial situation with a balance sheet as of June 1, 2008 and an income and expenditure report amended and approved at ICO-20 for the period October 1, 2005 through October 1, 2008 (see appendix Green Book). Assets: 189,799 US$. Total liability: 189,799 US$. Total income: 66,822 US$. Budget: 122,215 US$. He also gives the status of cumulative dues arrears as June 1, 2008. There must be a revision of TC having mo9re than 7 years in arrears. The President calls for a vote on the approbation of the income, expenditure and balance. Motion: Sawchuk, Sincerbox. The General Meeting approves unanimously.

(b) Proposed budget 2008-2011[16]

The Treasurer proposes a budget for the triennium 2008-2011 (see appendix Green Book).

(c) Unit subscription in 2008-2011

The Treasurer mentions the effect of inflation in current revenues. He proposes to increase the unit subscription up to 175 US$. This increase will permit as well consequent revision on awards, prizes and meeting supports. Discussions arisen. The proposed new unit has to be accorded to World Bank and UN definition for developing countries. The President calls for a vote on the approbation of the proposed budget in this realistic form and on the unit subscription in 2009, 2010 and 2011. Motion: Mendoza, Love. The General Meeting approves unanimously.

8 Reports of ICO Committees (accorded to treat prior to Points 6 and 7)

(a) Nominating Committee

Dändliker, Chair of the Committee presents the report. He displays the current list of candidates received by the Nominating Committee. Nominations and endorsements will be closed at 4:30 pm on Wednesday, July 9th. The first session of the General Meeting closed at 6:30 PM.

[16] Point 5b approved at the Second Session of the GA. Motion: Gu, Love.

Second Session

It is approved by the General Assembly to change the order of presentation of Points of the Agenda. Starting from Point 10 and following by the rest.

10 Date and venue of the General Meeting ICO XXII

A bid for ICO-22 has been received from Mexico. Fernando Mendoza on behalf of the Mexican Academy of Optics (AMO) presents the application to the General Meeting. The Congress would be held in Puebla, at the Convention Center of the city, with tentative dates August 29 – September 2, 2011. The proposed lemma: "Light for the Development of the World". The Bureau recommends approving the application. The president proposes to vote on this recommendation. Motion: Calvo, Gu. Vote: accepted unanimously.

6 Changes in the ICO Rules and Code of Practice

Amendments to the ICO Statues are presented to reflect recent changes in the operation of ICO. New definition of Article 2 (Green Book, p. 180) and new Rules and Codes of Practice, section 3 (Green Book, pp. 191-192). Motion to approve changes as recommended by the Bureau. Motion: Wagué, Jin. Approved unanimously.

7 Admittance of new members

For the last three years 2 Territorial Committees, Tunisia and Sudan, have applied as ICO Members. Tunisia already is an Associate Member. The Bureau has examined their applications and recommends the General Meeting to discuss on its acceptance. The application of Tunisia is moved. Motion: Guzman, Stahl. Unanimously approved. ICO Secretary informs on the application of Sudan from the Sudanese Committee of Atomic, Optics and Laser Science. The application of Sudan is moved. Motion: Wagué, Kujawinska. Approved by majority of votes Also, the Bureau is being authorized to transform associate membership into full membership during the triennium if conditions are fulfilled.

8 Reports of ICO Committees, continued

(a) Committee for the Regional Development of Optics

A. M. Guzman reports. She presents a resume on the following progress:
Subcommittees have been organized inside CREDO: Asia, Africa, and Latin-America (it includes the optical network REDOLA). All of them have a considerable number of collaborators. Most activities have been focused on two priority areas: developing nations, and education and training in optics.

The longstanding collaboration with the ICTP, the Abdus Salam International Center for Theoretical Physics in Trieste, was continued and even intensified by participation in the TSOSA Advisory Group, (TSOSA stands for "Trieste System for Optical Sciences and Applications") and Winter College in Optics. The possibility of increasing the cooperation between ICTP and Latin American countries is being explored. CREDO has been active in the ICTP-INFN initiative and stands for increasing scientific exchange programs. It is mentioned the support of SPIE from 30,000 US$ for the TSOSA activities for the three years term 2009-2011. Collaboration with the ICO Education Committee will have to be strengthened in order to better support regional educational programs.

(b) Traveling Lecturers Committee

A. Sawchuk reports. The total amount founded for the three years term 2006-2008 has been of 6,000 US$. See report in ICO Green Book "Towards ICO-21", pages 99-101..

(c) ICO Prize Committee

B. Y. Kim, Chair of the Committee, reports (see report in ICO Green Book "Towards ICO-21", pages 105-110). He thanks TC's for providing nominations, He mentions the ICO Prize winners for 2006 and 2007, H. Sotobayashi (Japan) and S. Marcos (Spain), respectively. For 2008, the winner was announced: Z. Zalevsky (Israel)..

(d) ICO/ICTP Gallieno Denardo Prize

A. Wagué also informs on the ICO/ICTP Award Winners, as Chair of the Committee and the new definition of the prize in memory of the late Prof. Gallieno Denardo (see pp 117-122 of the Green Book "Towards ICO-21"), for 2006, H. M. Moya-Cessa (Mexico), for 2007 S. V. Boriskina (Ukraine) and M. Zghal (Tunisia) for 2008.

(e) ICO Galileo Galilei Award Committee

I. Yamaguchi, Chair of the Galileo Galilei award Committee, reports on this program (see pp 111-116 of the Green Book "Towards ICO–21"). He mentions the Galileo Galilei Medal winners for 2005: V. Vlad (Romania); 2006: M. M. Shabat (Ghaza Strip, Palestine), 2007: O. Angelsky (Ukraine) and announces the 2008 Award, J. Widjaja (Thailand).

(f) ICO Education Committee

M. Kujawinska, Chair of the Committee, reports. The main ICO activity related to education has been its participation in the ETOP (Education and Training in Optics and Photonics) meetings series with now available proceedings by free downloading; participation at the Photonics 21 European Platform with publication on: "Towards a bright future for Europe"; new educational kits for optics; Erasmus Mundus Masters in optics and photonics and collaborations with EOS and SPIE Europe. A new section at the ICO website is now dedicated to Education activities. Territorial Committees are encouraged to make sure that existing programs in their territories are conveniently publicized.

9 Conferences with ICO participation

G. von Bally, Associate Secretary reports. The conferences with ICO participation runs with a budget for grants of: 7,500 US$ (category 1), 11,500 US$ (category 2) and 8,000 US$ (year 2008). As can be seen on pp. 123-130 of the ICO Green Book "Towards ICO–21", between the end of ICO-20 and ICO-21, ICO participated in 29 meetings and schools, in addition to ICO-21 itself: 1 Regional Meeting, 2 Topical Meetings, 3 ICO Schools and 23 endorsed, sponsored or co-sponsored meetings. The number of ICO meetings and schools had remained relative stable from the precedent three years term,.

An improvement in ICO meetings processes was that the forms of applications can now be found, in MS Word format, for downloading on the ICO website: www.ico-optics.org. There are two kinds of forms, one for ICO General Meetings and Other Major Events, and one for ICO Co-sponsorship and Endorsement of Conference and Schools. Both forms contain two parts, an Information and Guidelines part, and a Questionnaire. The completed Questionnaire is to be returned, electronically (by email), to ICO Associate Secretary.

Another important change in meetings processing during this triennium was that two deadlines, April 15th and October 15th of each year, were set annually for receiving applications of ICO participation in conferences and schools. Additionally, the applications should be received by ICO by a deadline that is at least one year before the event, and before the first announcement. The rationale behind these changes was improved coordination of international optics conferences.

Some forthcoming meetings in the next triennium, including the annual Winter Colleges at ICTP in Trieste and ICO-22 in Mexico in 2011, were reviewed. It was also pointed out that ICO is involved in two international meetings series: the Education and Training in Optics and Photonics (ETOP) conferences, jointly with SPIE, OSA and IEEE/LEOS, and the Optics in Computing / Information Photonics (OiC/IP) meetings, together with OSA and recently with the Japanese Optical Society.

Finally, it was pointed out that the bids for ICO-23 in 2014 are now open and that the deadline for proposals is April 15th, 2010.

11 Late nominations for the ICO Bureau Elections

No late nomination was received. R. Dändliker reviews late endorsements that have been received.

12 ICO Bureau Elections for the term 2005-2008:

The elections were held following the Rules and Codes of Practice. For all positions in the Executive Committee, no vote was necessary as there was only one candidate for each position. Two votes were necessary for the Vice-Presidents. In the first vote, five Vice-Presidents, including the two from industry, were elected. In the second vote, the remaining three Vice-Presidents were elected. In addition, the appointment of the Vice-Presidents of the International Organization Members was announced. The results were:

President:	M. L. Calvo (Spain)
Past President:	A. T. Friberg (Finland)
Secretary:	A. M. Guzman (Columbia)
Associate Secretary:	G. Von Bally (Germany)
Treasurer:	J. Harrington (USA)
Vice Presidents:	Y. Arakawa (Japan)
	Z. Ban Lakhdar (Tunisia)
	M. Gu (appointed by OWLS)
	I. Khoo (appointed by IEEE/LEOS)
	H. Lèfèvre (France, from industry)

F. Mendoza (Mexico)
D. T. Moore (USA)
M. Oron (Israel, from industry)
R. Ramponi (appointed by EOS)
P. Stahl (appointed by SPIE)
T. Szopliczs (Poland)
A. Wagué (Sénégal, appointed by the LAM Network)
B. Zhou (China)
Pending: OSA representative (to be designated by 31st October, 2008)

IUPAP will be asked to appoint, as usual, a delegate to ICO from its Executive Committee. The new Bureau formally assumes responsibility on October 1st, 2008.

13 Other business

No further business to be reported. President A.T. Friberg wishes a fruitful period of work.

General Assembly, second part ends at 6:45 PM.

2011 ICO GENERAL ASSEMBLY

Provisional agenda of the XXII General Assembly

Two sessions are planned for the 22nd General Assembly of ICO in conjunction with the ICO General Scientific Conference, "Light for the development of the world":

Session 1: Monday, August 15, 6:00 PM – 8:00 PM
Session 2: Wednesday, August 17, 6:00 PM – 8:00 PM

The exact rooms will be posted in the ICO 22 registration area.

The provisional agenda is as follows. Proposed changes should be preferable by requested in writing to the Secretary (angela.guzman@fau.edu), Fax +1 561 2972662) by August 1st, 2011. Proposed changes should preferably be requested by writing to the President before the first session begins.

1) Minutes of the ICO XXI General Assembly.
2) Matters arising.
3) Report of the President for 2008-2011 and report of the Long Range Planning Committee.
4) Report of the Secretary for 2008-2011
5) Finance:
    a) Treasurer's report
    b) Proposed budget for 2011-2014
    c) Unit subscription in 2011-2014
6) Changes are indicated in the ICO Rules and Codes of Practice (in this booklet)
7) Admittance of new members.
8) Reports of the ICO Committees:
    a) Nominating Committee
    b) Committee for Regional Development of Optics
    c) ICO Prize Committee
    d) IUPAP Young Scientist Prize in Optics Committee
    e) ICO Galileo Galilei Award Committee
    f) ICO/ICTP Award Committee
    g) ICO Travelling Lecturer Committee

h) ICO Education Committee

9) Conferences with ICO participation
10) Date and venue of the General Meeting ICO-XXIII
11) Late nominations for the ICO Bureau Elections.
12) ICO Bureau Elections for the term 2011-2014
13) Other business.

PROPOSED BUDGET 2011-2014 TRIENIUM

For period 10/1/2011 - 9/30/2014

Income		
Dues	$117,000	
Less not collectable	$38,000	
Net dues		$79,000
Royalties		$600
Interest		$600
Total Income		$80,200
Expenses		
Secretariat		$20,000
Newsletter - distribution		$12,000
Printing - Newsletter		$4,000
Printing & distribution - Green Book		$4,000
Bureau expenses		$3,000
ICO prizes + travel		$15,000
Meeting support		$30,000
ICTP school support		$15,000
ICO-23 Santiago, Spain		$7,500
Traveling lecture awards		$5,000
Reserves or new projects		$2,000
ICSU dues		$2,100
Total Expenses		$119,600
Budgeted Surplus/(Deficit) for 3 year period		($39,400)

James Harrington
ICO Treasurer