



ICON NEWSLETTER

Commission Internationale d'Optique

International Commission for Optics

October 2003

First Call for bids for ICO 21

Dear Colleagues:

The ICO Congresses are organized every three years. The Congress consists of the General Business Meeting as requested by the ICO statutes and of a Scientific Conference that should cover the wide disciplinary field of optics in its entirety. The purpose of this letter is to solicit bids for organizing the 21th ICO Congress to be held in 2008. Usually the Congresses are organized in August or in early September.

While the ICO aims that the Congresses would alternate between the various parts of the world, highly qualified proposals from all areas are encouraged and all bids will be considered. The 20th ICO Congress will be held in August 2005 in Changchun, China, with the title: "Challenging Optics in Science and Technology", whereas the 2002 Congress (ICO-19) was in Florence, Italy and in 1999 (ICO-18) and 1996 (ICO-17) the Congresses were in San Francisco, California (USA) and in Taejon, Korea, respectively.

Applicants preparing their bids are referred to the Information and Questionnaire Form on ICO Congresses and other major ICO events, that can be found also in the Green Book "Towards ICO-19" on pages 92-95, or on the ICO home pages: <http://ico-optics.org/>. Please submit your bid by completing the Questionnaire Form, including the necessary enclosures, and send it to me electronically or by airmail by 31 December 2003 for the consideration of the Bureau.

Sincerely,

Ari T. Friberg, ICO Associate Secretary (in charge of meetings), Ari.Friberg@imit.kth.se

ICO international topical meetings series: Optics in Computing 2003

Since 1987, a series of international topical meetings entitled "Optical Computing" (OC) have been organized annually. Until 1990, there was an unwritten agreement between a number of societies and individuals involved that these meetings would be organized in the odd years by the Optical Society of America (OSA) in the United States and in the even years by or with the sponsorship of the International Commission for Optics (ICO) outside the United States. ICO established a first draft of bylaws of the Steering Committee in November, 1990. The same was approved by OSA in February, 1991, by ICO in August, 1991, by SPIE in June 4, 1992 and by the European Optical Society (EOS) in April, 1992. An "OC steering committee" is established, with various duties so as to ensure the correctness of coordination among the involved societies or organizations. The committee first met in March, 1991, in Salt Lake City, and was chaired by Joseph W. Goodman in

the presence of A.A. Sawchuk, S. Ishihara, S.H. Lee, H.S. Hinton, members, and J. A. Neff, observer from SPIE. These conferences explore all aspects of the uses of optics in computing, interconnections, and information processing and are designed to provide a forum for the latest developments in devices, optics, circuits, integration technologies, packaging, systems, architectures, and applications. From 1997, the title of the meetings was changed to "Optics in Computing" and with additional specific thematic subjects. For example, in January, 2001, the meeting was held in Lake Tahoe, Nevada, with the title: Ultrafast Electronics and Optoelectronics, and having this time the technical co-sponsorship by IEEE/Lasers and Electro-Optics Society. In June 2003 an Optics in Computing Meeting has been organized as Topical OSA Meeting and it was partially located with Integrated Photonics Research (IPR), another OSA Topical Meeting. They have been held in Washington, DC (USA). This OC Topical Meeting has been devoted to the processing of information by photonic means including data sensing and imaging, storage, interconnects and communications.

A special emphasis has been placed on emerging areas of bio-sensing and bio-manipulation with light, quantum computing/communications, and nano-systems. Moreover, a joint IPR and OC session on nanofabrication technology was also programmed. In the forthcoming issue of ICO Newsletter, January 2004, a detailed report of the late OC meeting will be published.

Maria J. Yzuel, ICO representative, OC Steering Committee

ICO Territorial Committees News: Argentine ICO Territorial Committee Past-President awarded "Bernardo Houssay Prize" to Scientific and Technological Research excellence



The Argentine Secretary of Science, Technology and Productive Innovation set up this year a Prize to distinguish scientific and technological contributions of Argentine researchers residing in the country, named after the Argentine Nobel Prize of Physiology: "Premio Bernardo Houssay a la Investigación Científica y Tecnológica".

These Prizes were distributed amongst 21 areas and in

three categories. This year, the former ICO representative from Argentina (1998-2000) and SPIE Fellow, Prof. Dr. Guillermo H. Kaufmann, from Instituto de Física Rosario (IFIR) won the Prize as senior scientist in Engineering for his contributions to the field of Optical Engineering.



Dr. Kaufmann Laboratory at IFIR.

Guillermo H. Kaufmann received his Doctor in Science degree in Physics in 1978 from the Universidad de Buenos Aires, Argentina. He is currently a professor at the Physics Department of Universidad Nacional de Rosario and a principal researcher with Consejo Nacional de Investigaciones Científicas y Técnicas. He also heads the Optical Metrology Laboratory at IFIR. He has performed postdoctoral work at the National Physical Laboratory, UK, and at the University of Michigan, USA. He has also worked as a visiting researcher at the Swiss Federal Institute of Technology at Lausanne, the University of Cambridge and Loughborough University in the UK, the Mechanical Engineering Laboratory in Japan the Centro de Investigaciones en Óptica in México. Prof. Kaufmann has authored three book chapters and more than 130 scientific papers published in refereed journals and proceedings of international conferences. He has served as head of the Physics Department at the Universidad Nacional de Rosario and chair of the IFIR. He was a program committee member for several international conferences and chair of the IV Iberoamerican Meeting of Optics and the VII Latin-American Meeting on Optics, Lasers and their Applications held at Tandil, Argentina in 2001. He has acted as guest editor of the special section on Optical Science and Engineering in Argentina published in *Optical Engineering* in 1996 and of the special issue on *Optical Engineering in Latin America* published by *Optics and Lasers in Engineering* in 2003. He is a member of the Editorial Board of *Optics and Lasers in Engineering*. He is also a member of OSA and a senior member of IEEE. In 2002 he was elected fellow of SPIE for the development of fringe analysis methods in digital speckle pattern interferometry (DSPI) and their applications in experimental mechanics.

His contributions to fringe analysis are many. They include introducing phase-shifting techniques to analyze whole-field speckle photography fringes and developing a technique that allows enhanced visibility of DSPI fringes when analyzed with pulsed lasers. Other major contributions include the assessment of the performance of different

methods for speckle noise reduction and phase unwrapping by means of computer simulation of DSPI fringes, the application of DPSI to detect and characterize sub-surface defects in different materials, the introduction of several other novel techniques in DSPI systems based on pulsed lasers and the development of a high frequency phase-shifted speckle interferometer to analyze dynamic events.

For each award, a medal and Diploma was issued. A grant was also provided to each winner to participate in an International Congress in the field. The Prize-giving ceremony was on May 9 at the Presidential Palace, Presided by the Minister of Education.

Héctor Ranea-Sandoval, President ICO Argentina Territorial Committee.

Traveling Lecturer Program: Call for applications 2004

ICO established in 1988 a Traveling Lecturer Program 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. It is hoped that visits will lead to closer collaboration between the lecturer and the scientists of the destination territory. 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. Generally, these grants will not be awarded simply to support international conference attendance.

Within the financial limits of the budget, an ICO Committee, with the ICO Treasurer as chairperson, decides on the ICO Traveling Lecturer grants. Typically, an individual grant will be limited to **US\$1,000** or less in case other foundings are already obtained from the candidate. This Committee in principle does not meet and works internally by mail and telecommunication facilities so as to secure the fastest response compatible with good operation.

Successful applicants will be asked to serve as an "ambassador" from ICO. Upon returning, the applicant will be asked to complete a trip report detailing the state of science in the visited region (active programs, schools, labs, etc.). You may be asked to draft a short article on your trip and experiences for the ICO Newsletter published with *Optics and Photonics News*.

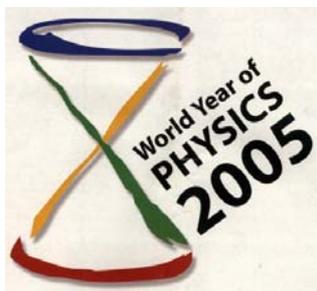
Scientists or host groups interested in participating in this program should complete the following application and send it by e-mail to the Treasurer of ICO with details of the proposed lecture program and ICO support requested.

The application form is available as a pdf file in: <http://www.ico-optics.org/travlecture.html>

Completed applications should be sent to:

Glenn Sincerbox, ICO Treasurer, P.O. Box 32576, Tucson, AZ 85751-2576, USA,
Phone: (1) 520-621-4260, Fax: (1) 520-621-4358
e-mail: sinbox@cox.net

World Year of Physics 2005



At the occasion of the World Congress of Physical Societies, held in Berlin in December 2000, more than 40 physical societies from around the world approved the proposal to declare 2005 as the World Year of Physics (WYP).

The year 2005 will be the centennial of the so-called Albert Einstein's "*Annus Mirabilis*". In fact, in 1905 Albert Einstein published three papers containing fundamental aspects of the laws of Physics.

One of them concerned the very nature of light. In it, Albert Einstein examined the phenomenon of the photoelectric effect with ultraviolet light, based upon and extending a previous hypothesis by Max Planck regarding black body radiation. Planck stated that electromagnetic energy in the later radiation seemed to be distributed in discrete amounts of energy. These quantities were called *quanta*, and the energy in any of them was proposed to be directly proportional to the frequency of the radiation. In principle, this idea seemed to contradict classical electromagnetic theory, based on Maxwell's equations, which accepted that electromagnetic energy is distributed in a continuous way in the waves, allowing energy transfers by any small amount. Albert Einstein extended Planck's quantum hypothesis to ultraviolet light propagating in free space and its absorption by electrons, thereby accounting for the photoelectric effect successfully.

In another 1905 paper, Albert Einstein proposed a quite different theory, which is today called the special theory of relativity and explained the experiment of Michelson and Morley. He based his new theory on a reinterpretation of the classical principle of relativity, namely, that the laws of Physics have the same form in any inertial reference system. As a fundamental hypothesis, Einstein assumed that the speed of light was exactly the same in all inertial reference frames, so that Maxwell's equations have the same form in all such frames. This result was also a proof of the consistency of Maxwell's equations, and definitively rejected the "ancient" concept of ether.

Later in 1905, Einstein showed that the concepts of mass and energy were equivalent. Although Einstein was not the only one to propose the foundations of special theory of relativity, his contribution has been crucial in unifying important parts of Classical Mechanics and Maxwell's Electrodynamics.

The third of Einstein's papers of 1905 concerned a basic aspect of Statistical Mechanics, namely, Brownian motion.

Aiming to these fundamental contributions of physics the WYP2005 has as a main purpose to raise world-wide public awareness of physical sciences.

Following the Berlin's proposal the European Physical Society (EPS) Council, held in March 2001, approved to mobilize support in Europe for this initiative.

In October 2002, the International Union of Pure and Applied Physics (IUPAP) unanimously adopted a resolution declaring also 2005 as the World Year of Physics.

A number of international organizations, such as UNESCO, FELASOFI, and others national and regional organizations such as the American Physical Society (APS), Institute of Physics (IOP), Japan Physical Society (JPS) have already expressed their support for WYP2005.

The International Commission for Optics (ICO), representing the international community in Optics, and as a relevant branch of physical science, will join this venture. There will be a unique opportunity at the occasion of the forthcoming ICO-20 General Assembly in Changchun (China), August 2005.

Related web site: <http://www.wyp2005.org>

Maria L. Calvo, ICO Secretary General.

News on ICO publications: Topical issue of *Journal of Optics A: Pure and Applied Optics* on "Optics for the Quality of Life"

Guest editors: Anna Consortini, *Universit'a degli Studi di Firenze, Italy* and Giancarlo Righini, *Nello Carrara Institute of Applied Physics, CNR, Firenze, Italy*.

In connection with the ICO-19 conference on "Optics for the Quality of Life" held in Firenze, Italy, on 25-31 August 2002, a topical issue of *Journal of Optics A: Pure and Applied Optics* will be devoted to papers reporting new research results particularly related to the theme of the conference. All aspects of classical optical phenomena has been considered. Topics to be covered include: • propagation, scattering and diffraction, • spectroscopy and interferometry, • instrumentation design and testing, • interaction of radiation with matter, • electro-optics and magneto-optics, • optical communications, modulation, computing and switching, • ultrafast phenomena, • IR, x-ray and XUV optics, • application of optics to other scientific fields, • atmospheric optics, • information processing and holography, • detectors, sensors and sources, • imaging, • lasers and sources, laser materials and systems, • vision.

The topical issue is scheduled for publication in September 2003.

Related link: <http://www.iop.org/journals/jopa>

Forthcoming events with ICO participation

Responsibility for the correctness of the information on this page rests with ICO, the International Commission for Optics; <http://www.ico-optics.org/>. President: Prof. René Dändliker, Institute of Microtechnology, University of Neuchâtel, CH-2000 Neuchâtel, Switzerland. Assoc. Secretary: Prof. Ari T. Friberg, Royal Institute of Technology, Optics, Electrum 229, SE-164 40 Kista, Sweden; ari.friberg@imit.kth.se

6-8 October 2003

8th Int'l Conference on Education and Training on Optics and Photonics (ETOP 2003)

Tucson, Arizona, USA

Chair: Barry L. Shoop, U.S. Military Academy, Photonics Research Ctr., West Point, NY

fax. +1 845 938-3062, barry.shoop@usma.edu

Co-Chair: Grover A. Swartzlander, Jr., Univ. of Arizona, Tucson, AZ, grovers@optics.arizona.edu

OSA, 2010 Massachusetts Ave., NW,

Washington, DC 20036, USA, info@osa.org

<http://www.etoponline.org/>

12-17 October 2003

4th Int'l Workshop on Adaptive Optics for Industry and Medicine (4. IWAOIM)

Beijing, China

Prof. Wenhan Jiang, Institute of Optics and Electronics, Chinese Academy of Sciences (CAS), Box 350 Shuangliu, 610209 Chengdu, China,

fax. +86 28 8510 0070,

lib@ioe.ac.cn<http://www.cashq.ac.cn/cise/4th-iwaoim.htm>

20-24 October 2003

III Int'l Conf. for Students, Young Scientists and Engineers (Optics 2003)

St. Petersburg, Russia

Contact: Dr. Ekaterina Utanova, Technical Univ., 14

Sabliskaya str., St. Petersburg 197101, Russia

Fax. +7 812 232-1467, conf_optics@mail.ifmo.ru

<http://www.ifmo.ru/optico03/eng>

1-4 December 2003

Int'l Conf. on Laser Applications and Optical Metrology (ICLAOM'03)

New Delhi, India

Prof. Chandra Shakher, Instr. Design Development Center,

Indian Inst. of Techn. Delhi, Hauz Khas, 110016 New Delhi, India

Fax: +91 11 2686 2037, iclaom@iddc.iitd.ernet.in

21-23 April 2004

Optics in Computing 2004 (OiC 04)

EOS Topical Meeting

Engelberg, Switzerland

General Chair: Dr. Jürgen Jahns, FernUniversität Hagen, Optische Nachrichtentechnik, Universitätsstr.2/PRG, D-58084 Hagen, Germany,

Fax: +49 2331 987352, jahns@fernuni-hagen.de

Co-Chair: Peter Seitz, CSEM,

Centre Suisse d'Electronique et de Microtechnique S.A.,

Badenerstrasse 569, P.O. Box, CH-8048, Zurich, Phone: 41 1

497 1411, Fax: 41 1 497 1400

<http://www.oic2004.com>

13-15 July 2004

ICO International Conference, Optics & Photonics in Technology Frontier

("ICO'04 Tokyo", co-located with ODF'04 and ICOSN'04, held together with InterOpto'04)

Makuhari Messe, Chiba, Japan

Dr. Kimio Tatsuno, Hitachi Ltd., CRL, 1-280 Higashi-koigakubo, Kokubunji, Tokyo, Japan.

Fax. +81 423 27 7673,

tatsuno@crl.hitachi.co.jp <http://www.opticsdesign.gr.jp/>

2-8 October 2004

5th Ibero-American Meeting on Optics, and 8th Latin-American Meeting on Optics, Laser and Their Applications (V Riao / VIII Optilas)

Porlamar, Margarita Island, Venezuela

Prof. Aristides Marciano Olaizola

Centro de Fisica, Instituto Venezolano de Investigaciones

Cientificas, Caracas 1020 A, Apartado 21827, Venezuela

fax. +58 212 504 1148, marcano@pion.ivic.ve

<http://www.ivic.ve/Fisica/Cuantica/riao>

21-26 August 2005

ICO-20, Triennial Congress of the International Commission for Optics

"Challenging Optics in Science and Technology"

Changchun, China

Dr. Jianlin Cao, President

Changchun Institute of Optics, Fine Mechanics and Physics,

140 Renmin Street, Chanchung 130022, P.R. China

fax. +86 431 5682346, caojl@ciomp.ac.cn

<http://www.conference.ac.cn/ico20.html>

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