INTERNATIONAL COMMISSION FOR OPTICS
COMMISSION INTERNATIONALE d'OPTIQUE

ICO Newsletter

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International Commission for Optics
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The Importance of Physics to Society - a Statement adopted by the General Assembly of IUPAP, the International Union for Pure and Applied Physics, March 1999

Physics - the study of matter, energy and their interactions - is an international enterprise which plays a key role in the future progress of humankind. The support of physics education and research in all countries is important because :

1. Physics is an exciting intellectual adventure that inspires young people and expands the frontiers of our knowledge about Nature.
2. Physics generates fundamental knowledge needed for the future technological advances that will continue to drive the economic engines of the world.
3. Physics contributes to the technological infrastructure and provides trained personnel needed to take advantage of scientific advances and discoveries.
4. Physics is an important element in the education of chemists, engineers and computer scientists, as well as practitioners of the other physical and biomedical sciences.
5. Physics extends and enhances our understanding of other disciplines, such as the earth, agricultural, chemical, biological, and environmental sciences, plus astrophysics and cosmology - subjects of substantial importance to all people of the world.
6. Physics improves our quality of life by providing the basic understanding necessary for developing new instrumentation and techniques for medical applications, such as computer tomography, magnetic resonance imaging, positron emission tomography, ultrasonic imaging, and laser surgery.

In summary, for all these reasons, physics is an essential part of the educational system and of an advanced society. We therefore urge all governments to seek advice from physicists and other scientists on matters of science policy, and to be supportive of the science of Physics. This support can take many forms such as :

> National programs to improve physics teaching at all levels of the educational system. Building and maintaining strong departments in universities (and other academic institutions) with opportunities for grants to support research. Scholarships and fellowships for both undergraduate and graduate students studying physics. Adequate funding for national laboratories and the formation of new ones as appropriate. Funding and facilitating international activities and collaborations.

[Top]

Are you ready for ICO XVIII?

Congresses of the International Commission for Optics are held every three years in association with a large scientific meeting covering all aspects of optics. ICO XVIII will be held in San Francisco, Ca, August 2-6, 1999. The event is being organized by SPIE, the International Society for Optical Engineering, on behalf of the United States National Committee for ICO. Registration, exhibition and travel information, as well as the advance program, are available on the ICO web page http://www.ico-optics.org or by e-mail to ico18@spie.org. Aside the scientific meeting will have contributions from 45 countries, ICO XVIII will include the ICO triennial business meeting, where new statutes will be proposed to the members (see below). Two topical meetings are being organized in Cancun, Mexico, July 28-30 as satellite events to ICO XVIII : Light for Life and the 6th International Topical Meeting on Education and Training in Optics. Information : http://www2.uaem.mx/cii.

[Top]

ICO Ready for New Statutes

With 45 Territorial Committees for members, ICO is a unique organization in the field of Optical Science and Engineering and has been instrumental at setting up the broadest possible geographical representation of our scientific community. With the considerable development of large meetings organized by societies active internationally, ICO has perceived the need to improve its representativity further by offering those bodies an opportunity to join under a new membership category. The business meeting part of the ICO XVIII congress will consider new statutes that have been drafted by the Bureau and

circulated to the membership for advice. Under the new rules, there will be two main categories of members : in addition to the present Territorial Committee members, that will automatically conserve a majority of the votes, International Organization members will be introduced. If the new statutes are passed, it is expected that the first members in the new category will include the European Optical Society, the IEEE Lasers and Electro-Optics Society, the Optical Society of America, and SPIE - the International Society for Optical Engineering.

[Top]

International Trends in Optics and Photonics : Fourth ICO Book published

Following a decision taken at the 1987 ICO Bureau meeting, ICO established a series of books. One volume is normally published every three years, with the ICO President, Past-President or a former President acting as the Editor.

The books are collections of papers on the many faces of optics written by outstanding scientists and engineers, chosen worldwide in accordance with the international character of ICO. Although the presentation is in the form of a technical paper, the style is more informal, and therefore also accessible to readers who are not specialists of the specific topic. Open problems and authors' personal viewpoints are included, thus also providing specialists with valuable state-of-the-art presentations. One purpose of the initiative is to increase ICO visibility and raise additional funds to support ICO activities, among them the traveling lecturer program devoted to the support of optics in developing countries. The royalties, typically paid to the editor and the authors, are instead paid to ICO.

The first three books in the series appeared in 1991, 1994 and 1996 respectively under the titles "International Trends in Optics", "Current Trends in Optics" and "Trends in Optics - Research, Development and Applications". They were edited by the three latest past Presidents of ICO, J.W. Goodman, J.C. Dainty and A. Consortini.

The fourth book in the series is scheduled to appear in August 1999 under the title "International Trends in Optics and Photonics". It will be published by Springer Verlag as Volume 74 of the Springer Series in Optical Sciences. The book includes the following chapters :

Fundamental Optics (General, physical and quantum optics)

1. Optical twist, A.T. Friberg
2. Principles and fundamentals of near field optics, M. Nieto-Vesperinas
3. Spin-orbit interaction of a photon: theory and experiment on the mutual, influence of polarization and propagation, N.D. Kundikova and B.Ya. Zel'dovich
4. Atoms and cavities: the birth of a Schroedinger cat of the radiation field, J.-M. Raimond and S. Haroche
5. Quantum tomography of Wigner functions from incomplete data, V. Buzek, JG. Drobny and H. Wiedemann

Information Optics

1. Some new aspects on the resolution in Gaussian pupil optics, S.S. Lee, M.H. Lee and Y.R. Song
2. Multichannel photography with digital Fourier optics, G.-G. Mu, L. Lin and Z.-Q. Wang
3. Holographic optics for beamsplitting and image multiplication, A.L. Mikaelian, A.N. Palagushkin and S.A. Prokopenko
4. Image restoration, enhancement and target location with local adaptive linear filters, L. Yaroslavsky
5. Fuzzy problem for correlation recognition in optical digital image processing, G. Cheng, G. Jin, M. Wu and Y. Yan

Optical Communication (Photonics and optoelectronics)

1. All-optical regeneration for global-distance fiber-optic communications, E. Desurvire and O. Leclerc
2. Non quantum cryptography for secure optical communications, J.P. Goedgebuer

Optical Materials and Processing

1. Pulsed laser deposition: an overview, I.N. Mihailescu and E. Gyorgy
2. Absolute scale of quadratic nonlinear-optical susceptibilities, I. Shoji, T. Kondo and R. Ito

Optical Technologies

1. Femtosecond Fourier optics: shaping and processing of ultrashort, optical pulses, A.M. Weiner
2. Aperture modulated diffusers (AMDs), H.P. Herzig and P. Kipfer
3. Optical properties of quasiperiodic structures: linear and nonlinear analysis, M. Bertolotti and C. Sibilia

Optical Metrology (Optical systems)

1. Diffractive optical elements in materials inspection, R. Silvennoinen, K.-E. Peiponen and T. Asakura
2. Multiple-wavelength interferometry for absolute distance measurement, R. Dandliker and Y. Salvade
3. Speckle metrology - some newer techniques and applications, R.S. Sirohi
4. Limits of optical range sensors - and how to exploit them, G. Hausler, P. Ettl, M. Schenk, G. Bohn and I. Laszlo
5. Imaging spectroscopy for the non-invasive investigations of paintings, A. Casini, F. Lotti and M. Picollo Biomedical Optics
6. Optical coherence tomography in medicine, A.F. Fercher and C.K. Hitzenberger
7. The spectral optimization of human vision: some paradoxes, errors and resolutions, B.H. Soffer and D.K. Lynch

Others

1. Optical methods for reproducing sounds from old photograph records, J. Uozumi and T. Asakura

[Top]

Optical Techniques for Combustion workshop to be hosted by the University of Cape Coast, Ghana

ICO has a tradition of cooperation with the International Centre for Science and High Technology (ICS-UNIDO), Trieste, Italy. The University of Cape Coast, Ghana, which is also the seat of the ICO Territorial Committee Ghana/West Africa, together with the KNUST Department of Mechanical Engineering, Kumasi, and the Tema Oil Refinery, will host the ICS UNIDO Workshop on Combustion Diagnostics and Optical Techniques, July 5-9, 1999. Topics will include air pollution due to combustion, modelling of combustion diagnostics, optical measurement methods, emission and absorption spectroscopy, laser induced fluorescence, laser Doppler velocimetry, laser probing of combustion. Information: lafoc@ncs.com.gh, fax +233 42 32446.

[Top]

Forthcoming Events with ICO Participation

July 28-30, 1999
ETOP'99, Sixth Intl. Conference on Education and Training in Optics and Photonics

23-25 August 1999
DO'99, EOS Topical Mtg on Diffractive Optics
Jena, Germany

Cancun, Q.R., Mexico
(organized in association with SPIE and OSA)
Dr. J.J. Sánchez-Mondragón, CIICAP, UAEM
Av. Universidad 1001, Col. Chamilpa
CP 62210, Cuernavaca, Morelos, Mexico
fax. +52 73 297084
etop@uaem.mx
http://www2.uaem.mx/cii/etop.html
(ICO-18 satellite meeting)

July 28-30, 1999
Light for Life
Cancun, Q.R., Mexico
(organized in association with OWLS and OSA)
Prof. Jorge Ojeda-Castañeda, UDLA
Apdo Postal 100, Exhda, Sta. Catarina
Cholula 72829, Puebla, Mexico
fax. +52 22 292066
light@uaem.mx
http://www2.uaem.mx/cii/lightwel.html
(in parallel with ETOP'99, ICO-18 satellite meeting)

August 2-6, 1999
ICO-18, Triennial Congress of the International Commission for Optics
"Optics for the Next Millennium"
San Francisco, California, USA
ico18@spie.org
http://www.spie.org/info/ico/
http://www.ico-optics.org/

Prof. Frank Wyrowski, Inst. of Applied Physics
Friedrich-Schiller-Universität Jena
Max-Wien-Platz 1, D-07743 Jena, Germany
fax +49 3641 657675, do99@iap.uni-jena.de
http://iapnt.iap.uni-jena.de/do99/

30 August - 1 September 1999
MOEMS'99, Third Intl. Conference on Micro Opto Electro Mechanical Systems
Mainz, Germany
Dr. Hans-Dieter Bauer, IMM, Carl-Zeiss-Str. 18-20, D-55129 Mainz, Germany
fax. +49 6131 990200, huke@imm-mainz.de
http://www.imm-mainz.de/

10-16 April 2000
ICO Topical Meeting, Optical Science and Applications for Sustainable Development
Dakar, Senegal
Prof. Ahmadou Wague, Université C.A.D.
Departement de Physique, Dakar, Senegal
fax +221 8 246318, wague@smtp.refer.sn

18-23 June 2000
OC'2000, Optics in Computing
Quebec City, Canada
Dr. Denis Gingras, INO, 369, rue Franquet
Sainte-Foy (Quebec), Canada G1P 4N8
fax +1 418 657 7009, gingras@ino.qc.ca
http://gabor.phy.ulaval.ca/oc/index.html

[Top]