



# ICON NEWSLETTER\*

Commission Internationale d'Optique

International Commission for Optics

April 2004

## ICO Prize 2003 winner profile: Benjamin Eggleton, tailoring new photonic devices



Benjamin J. Eggleton is currently a Federation Fellow of the Australian Research Council (ARC), Professor of Physics and the Director of the ARC Centre of Excellence for Ultrahigh-bandwidth Devices

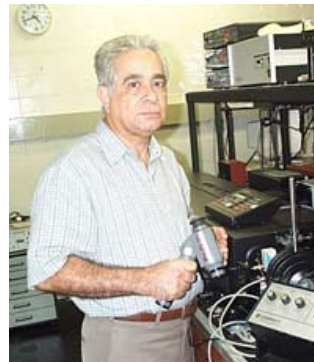
for Optical Systems (CUDOS) at the University of Sydney in Australia. He received his Ph.D in Physics from the University of Sydney in 1996. He then joined Bell Laboratories, Lucent Technologies, as a Postdoctoral Member of Technical Staff in the Optical Physics Department where he explored nonlinear pulse propagation effects in one-dimensional photonic crystal materials. In 1998 he transferred to the Optical Fiber Research Department at Bell Laboratories and subsequently was promoted to Technical Manager of the Fiber Grating and Devices group where he lead Lucent Technologies research effort in fiber grating devices. In this role he lead a team that invented and developed a 40Gb/s tunable dispersion compensator that was subsequently manufactured and deployed in optical networks. In 2000 he was promoted to Research Director within the Speciality Fiber Devices Business Division where he was responsible for forward-looking research and research prototyping supporting Lucent Technologies business in optical fiber devices and components, including fiber lasers, Raman amplifiers, optical performance monitors and polarization management devices.

More recently he was Director of the Photonic Devices Research Department in OFS Laboratories, part of the newly formed OFS Fitel business. Dr. Eggleton has co-authored over 90 journal publications and numerous conference papers and invited presentations. Dr Eggleton was the recipient of 1998 Adolph Lomb Medal from the Optical Society of America for the first demonstration of nonlinear pulse propagation effects in photonic bandgap materials. He received the distinguished lecturer award from the IEEE/LEOS in 2002, is an OSA fellow and was the co-inventor of a photonic device that was award an R&D100 award. His research interests include nonlinear optics, photonic bandgap structures, optical fiber gratings, air-silica microstructured fibers, tunable optical fiber devices, microfluidics, dispersion compensation techniques, Raman

amplification and optical regeneration. He was the Program Chair for the 2003 LEOS Topical Meeting on Photonic Crystals and Holey Fibres and serves on various conference committees. He is also an associated editor for IEEE Photonics Technology Letters. It is expected that Prof. Benjamin J. Eggleton will deliver the ICO Prize 2003 Lecture in the forthcoming ICO-20 Triennial Congress "Challenging Optics in Science and Technology", Changchung, China, 21-26 August 2005.

The Chair of the ICO Prize Committee is Prof. A.A. Friesem, Department of Physics, Weizmann Institute of Science, P.O. Box 26, Rehovot 76100, Israel, e-mail: [friesem@wicc.weizmann.ac.il](mailto:friesem@wicc.weizmann.ac.il). The ICO Prizes winners are cited in ICO Golden Book: <http://www.ico-optics.org/Goldenbook.html>

## ICO Galileo Galilei Award 2003 winner profile: Cid Bartolomeu de Araújo, focusing light and non-linear materials



The 2003 Galileo Galilei Award is given to Prof. Dr. Cid Bartolomeu de Araújo, Departamento de Física, Universidade Federal de Pernambuco, Cidade Universitária, Recife, PE, Brazil. Prof. de Araújo was born on May, 20th 1945 in Recife, Brazil.

He received his Master degree in Physics from the Pontificia

Universidade Católica, Rio de Janeiro, in 1971. After finishing his PhD in Physics at the same University in 1975 he joint the group of the Nobel Laureate Prof. Dr. Bloembergen at Harvard University, Cambridge, USA, as research associate. Returning back to Brazil in 1978, he started a theoretical research program in optics and by 1983 he established a laboratory for research in non-linear optics in Recife. The research work has attracted funding for research in non-linear optics, laser spectroscopy and photonics from Brazilian agencies such as National Research Council, Ministry of Education and Ministry of Science and Technology. Prof. de Araújo is one of the founders of the Physics Department of the Federal University of Pernambuco, where he became full professor in 1989 up to the present. As early as 1980 his team was the first to propose two-photon absorption by a pair of two different

atoms, an effect observed only recently by a group of German scientists. Thanks to the advances in quantum-optics, the importance of the effect predicted 23 years ago by Prof. de Araújo and his co-workers can now be visualised for application and quantum computation. Also in 1980 his team was the first to demonstrate frequency up conversion via energy transfer among isolated isoionic triads of ions in doped crystals. His group was also the first to report coherent excitation of phonon-polaritons in a centrosymmetric crystal. In 1991 his group was the first to demonstrate two-colour Z-scan technique for nonlinear material characterisation, a technique later reported independently by a group at CREOL at the University of Central Florida, Orlando. In recent years, Prof. de Araújo has been involved in several experiments in fluoroindate glasses. Currently the major effort in his laboratory is dedicated to studies of nonlinearities in nanostructured materials, including photonic bandgap crystals and nanocomposites. Summarizing it can be said, that the nonlinear optics group under the leadership of Prof. de Araújo has gained international reputation.

Yet, it has not to be forgotten, that all these efforts were done under especially complicated circumstances. So, despite of the economic hardships and bureaucratic bottlenecks, he made possible to establish world-class research facilities in Recife and to train new generations of students not only from Brazil but also from other developing countries. He advocated high standards and lobbied the federal and state governments to support basic as well as applied research in parts of Latin-America and Brazil in particular. In his country Prof. de Araújo has provided unparalleled services to the optics community. He has contributed to the departmental and university governance, served in advisory capacity with several federal and state government agencies, and played leadership role in the Brazilian Physical Society, an umbrella organization for all branches of physics, including optics.

It was this combination of internationally high standard research on one side and his outstanding personal engagement without which the economic and bureaucratic restrictions could not have been overcome, on the other hand, which convinced the Galileo Galilei Award Committee to propose Prof. de Araújo as candidate for the Galileo Galilei Award 2003 to the Board of the International Commission for Optics. This proposal was supported and accepted by the Board Members at their meeting in Joensuu, Finland, in September 2003.

It is expected that Prof. Cid B. de Araújo will deliver de ICO Galileo Galilei Award 2003 Lecture in one of the major forthcoming ICO Meetings or supported events.

Prof. h. c. (Acad. Sci. UA) **G. von Bally**  
Chair of the Galileo Galilei Award Committee

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## **CorrOpt'03 Report: 6<sup>th</sup> International Conference on Correlation Optics**

The 6<sup>th</sup> in a series of biannual International conferences on correlation optics was held at September 16-19, 2003 in Chernivtsi, Ukraine with Prof O. Angelsky of Chernivtsi University as the Conference Chair. The conference has been organized by SPIE – The International Society for Optical

Engineering, OSA – Optical Society of America, ICO – International Commission for Optics, which were as well sponsors of the meeting, and by OWLS – Optics Within Life Sciences. ICO and SPIE were presented by Prof M. Kujawinska (Poland) as well as an invited speaker, and OWLS was presented by Prof Min Gu (Australia). In comparison with previous conferences, the organizers have changed the time of the meeting from May to September, which is much more convenient for most participants.

The conference was preceded by fruitful work of the International Program Committee consisting of world-known experts, which provided selection of high-level presentations and success of the meeting.

The conference was attended by over 80 participants from 21 countries. So, this meeting became the most representative since 1993, when the chain of conferences on correlation optics had started. The conference attracted many new participants presented superb talks. Among them are Prof Min Gu (Australia), Prof Lihong Wang (USA), Prof P. Ambs (France), Prof M.A. Player (UK), Prof D. Cojoc (Romania), Dr A. Dieterlen, and others. About 20 invited lectures and 30 oral presentations as well as dozens posters covered four traditional topics of this conference, such as:

- informative content of statistical optical fields, including optical chaos and singular optics (optical vortices),
- optical correlation devices based on diffractive optical elements, including optical and digital holography, fractal optics, and optical sensors,
- optical correlation diagnostics, interferometry and microscopy of rough surfaces and random media,
- new applications of correlation optics in biology and medicine.

Following a tradition, there were no parallel sessions in order to offer intense discussions of the most of reports by interested participants. Interesting presentation were made by the members of the Student Chapter of SPIE in Chernivtsi University. Besides, participants of the conference had a possibility to attend scientific laboratories of the Department of Correlation Optics in Chernivtsi University where they were acquainted with the state-of-the-art of R&D in optics of the host institution.

Some new promising tendencies in development of fundamentals and applications of correlation optics were revealed at the conference. Among them are new techniques for manipulation of microparticles, application of singular optical approaches into classification and characterization of rough surfaces, complex ultrasonic and correlation optical studies of biotissued, etc.

Discussion of the problems of modern optics at the conference will undoubtedly serve to the development of scientific and humane contacts and offered reviving of innovation activity that is among the state priorities of the Ukraine going to the World Trade Community.

**O. Angelsky**, Chair

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## **TECNOLASER 2003: Results And future opportunities**

Presidential board



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In the past decade TECNOLASER events have been a tribune for optical applications to industry and medicine, almost all Cuban optics community took part in the past 3 editions. In July 15<sup>th</sup>, 16<sup>th</sup> TECNOLASER 2003 took place in the Hall 15 of the Palace of the Conventions in La Havana (Cuba). Prof. J.G. Darias, Chairman of the Organizing Commission of TECNOLASER 2003 and Director of the Center of Technological Applications and Nuclear Development, engineer T. Lopez, Vice-president of the Organizing Commission of METANICA 2003 and Director of GESTA, engineer A. Díaz, President of the Agency of Nuclear Energy and Technologies of Advanced and M.Sc. O. M. Valdés, Vice-president of the Organizing Commission of TECNOLASER 2003 and Vice-director of Instrumentation of the Centre of Technological Applications and Nuclear Development took part in the aperture activity. Chairman initial speech was focused to the present and future activities in the branch of the optics and emphasizing in collaborative interest of the Cuban optical community with other institutions in the whole world. Tecnolaser is a series of events endorsed by ICO.

Chairs: **Juan C. López Chacón, Justo Ravelo Triana and Omar Morales Valdés.**

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## Call: The 8<sup>th</sup> International Conference on OWLS (OWLS8), Biophotonics Down Under

The International Conference on Optics Within Life Sciences (OWLS) is one of the major principal forums for scientists, engineers and research students to exchange topical research and development information and to stimulate discussion on novel applications and concepts. Following previous OWLS meetings, the 8<sup>th</sup> International Conference on OWLS (OWLS8), Biophotonics Down Under, will be an interdisciplinary meeting devoted to all applications of optics and lasers in the life-sciences, including biology, medicine, environmental sciences and the humanities. The scientific program will consist of invited and contributed talks, as well as posters. There will also be a trade exhibition. The meeting will commence with a

welcome reception at the Eden on the Park Hotel in Melbourne, Australian, on Sunday, 28 November 2004.

OWLS8 has received a financial support from the International Commission for Optics (ICO, <http://ico-optics.org>), an official sponsor of the OWLS8. This grant will be used to assist young scientists from developing countries to attend the OWLS8. Up to 7 scientists will be supported under this scheme. Awardees will receive a travel support of A\$500. In addition, the organising committee of the OWLS8 will provide the awardees with a further support by waiving the registration fee.

Further information of OWLS8 (submission, registration, accommodation and travel support) is available at the following web site: <http://www.swin.edu.au/optics/cmp/owl8>. Professor **Min Gu**, Chair of the OWLS8, Centre for Micro-Photonics School of Biophysical Sciences and Electrical Engineering, Swinburne University of Technology, PO Box 218 Hawthorn, Melbourne, Victoria 3122, Australia, e-mail: [mgu@swin.edu.au](mailto:mgu@swin.edu.au)

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## Education and Training in Optics and Photonics 2003: Most Successful ETOP in History!

One of the ICO's major meetings is a series of education and training in optics and photonics. By most all measures, this year's conference, the 8<sup>th</sup> in the series, was the most successful to date in that there were over 100 presentations and over 120 attendees of global distribution from 23 countries. The ETOP conference is principally co-sponsored by the Optical Society of America and The International Society for Optical Engineering (SPIE) with the administration responsibility alternating between the two in collaboration with the host organization. This year it was the Optical Society of America co-chaired by Barry Shoop of the United States Military Academy and Gordon Swartzlander from the University of Arizona, both in the United States.

A major reason for the success was that the meeting was held jointly with the 87<sup>th</sup> Annual OSA Meeting "Frontiers in Optics." Additional co-located conferences were the Laser Science XIX from the American Physical Society and a Conference in Organic Thin Films co-sponsored by the American Chemical Society and the Optical Society of America. The common venue for these conference allow for an easy flow of participants between various sessions and allowed individuals to focus on the highlighted keynote speakers during various plenary sessions. Within the ETOP meeting the participants were fortunate to hear Professor Karl Wieman, 2001 Nobel Laureate in Physics speaking on science education while Sir Michael Berry address the participants on Tuesday in a talk entitled, "Making Light of Mathematics" On Wednesday we were fortunate to hear Nicholaas Bloembergen, 1981 Nobel Laureate in Physics who took us on a nostalgic visit to his early years of training in optics. We were indeed to fortunate to have numerous other international invited speakers sprinkled through the other sessions addressing various aspects of education from curricula to articulation to distance learning as well as important presentation on the need for more optical scientists and engineers including technicians. As usual ICO furnished

many of their presentations on optics and photonics issues in developing nations in particular stressing the significance of the explosive growth of optics as a pervasive and enabling technology for the future.

One unique aspect of this year's conference was illustrative table top demonstrations suitable for classroom utilization. Interaction between the attendees was enlightening and contagious. The setting for the conference was most conducive for discussions between the participants who also had a program of receptions and social events to further enhance the pleasant experience of attending the conference.

If you missed ETOP 2003, you missed one of the best educational conferences in our field!

The Chair of the Education in Optics Steering Committee is Ari T. Friberg. The location of the new Education and Training in Optics meetings is now under study from the Steering Committee. Ari Friberg can be contacted at: [ari.friberg@imit.kth.se](mailto:ari.friberg@imit.kth.se)

**Alexander Sawchuck**, Chair of the ICO Education Committee, **Arthur H. Guenther**, ICO Past-President.

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## 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](mailto:ari.friberg@imit.kth.se)

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2-13 February 2004

**ICTP/ICO Winter College on Interferometry and Applications to Modern Physics**

Miramare - Trieste, Italy

Prof. G. Denardo, ICTP, Strada Costiera 11, I-34014 Trieste, Italy  
fax. +39 040 2240 443, [denardo@ictp.trieste.it](mailto:denardo@ictp.trieste.it),

<http://www.ictp.trieste.it/>

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](mailto: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>

12-15 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](mailto:tatsuno@crl.hitachi.co.jp) <http://www.opticsdesign.gr.jp/>

26-30 September 2004

**Optics, Life and Heritage**

Havana City, Cuba

(Satellite meeting to V Riao / VIII Optilas)

Dr. Angel G. Augier, Inst. Nuclear Sciences and Tech.,

Dept. of General, Physics and Math., CP 10 400, La Habana, Cuba,  
fax. +537 202 1518,

[augier@fctn.isctn.edu.cu](mailto:augier@fctn.isctn.edu.cu)

<http://www.ff.oc.uh.cu/scf>

3-8 October 2004

**ICO Regional Mtg, 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 Marcano Olaizola

Centro de Fisica, Instituto Venezolano de Investigaciones Cientificas, Caracas 1020 A, Apartado 21827, Venezuela  
fax. +58 212 504 1148, [marcano@pion.ivic.ve](mailto:marcano@pion.ivic.ve)

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

18-21 October 2004

**Basic Problems in Optics (BPO'04)**

St. Petersburg, Russia

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

St., Petersburg 197101, Russia

fax. +7 812 232-1467, [conf\\_bpo@mail.ifmo.ru](mailto:conf_bpo@mail.ifmo.ru)

[http://soi.srv.pu.ru/about/conferences/optics\\_2004/optics\\_2004.htm](http://soi.srv.pu.ru/about/conferences/optics_2004/optics_2004.htm)

28 November – 1 December 2004

**OWLS VIII Biophotonics Down Under**

Melbourne, Australia

Prof. Min Gu, Swinburne Univ. of Technology, Ctr for Micro-

Photonics, PO Box

218, Hawthorn, Victoria 3122, Australia

fax. +61 3 92145435, [mgu@swin.edu.au](mailto:mgu@swin.edu.au)

<http://www.swin.edu.au/optics/cmp/owls/>

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, Changchun 130022, P.R. China

fax. +86 431 5682346, [caojl@ciomp.ac.cn](mailto:caojl@ciomp.ac.cn)

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

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