



ICON NEWSLETTER*

Commission Internationale d'Optique

International Commission for Optics

July 2004

ICO/ICTP Award 2004 goes to Imrana Ashraf Zahid and Revati Nitin Kulkarni: The example of Women in Optics in developing countries



Dr. Imrana Ashraf Zahid

The program of the Winter College, held in Trieste (Italy), at the ICTP (see below) is extended every year by the ICO/ICTP Prize ceremony. For the year 2004 the ICO/ICTP Award was given to Dr. Imrana Ashraf Zahid from Quaid-I-Azam University (Pakistan) and Dr. Revati Nitin Kulkarni from the International Institute of Information Technology, Pune (India), both researchers were sharing this 2004 prize. Dr. Ashraf was awarded for her contributions in the field of Quantum and Atom Optics and Lasers, and Dr. Kulkarni was awarded for her contributions in the field of Adaptive Optics. Both scientists are young researchers who have been pursuing their careers in a developing country as defined by UN.



Dr. Revati Nitin Kulkarni

In this occasion, the two winners of the 2004 prize were invited to deliver each an invited lecture. Thus, Dr. Ashraf presented the sounded results on her theoretical work on "Role of Pump-phase Fluctuations in Micromasers" and Dr. Kulkarni, was presenting the major achievements of her experimental work on the "Development of Methods and Devices for Adaptive Optics".

All the attendees were impressed by the quality of their work developed in their countries of origin in the mentioned institutions.

The diplomas and awards were presented to the awardees by the ICO President, Prof. René Dändliker, in the presence of the ICTP-Executive Deputy Prof. Gallieno Denardo, followed by the presentations of the recipients. The subsequent reception sponsored by the ICO provided a further chance for the mostly young participants, and for more senior lecturers to socialize and to congratulate to the ICTP colleagues for the 40th Anniversary of the foundation

of this organization. The reception was also attended by the current ICTP Director, Prof. K. R. Sreenivasan.

The Chair of the ICO/ICTP Award Committee is Prof. Asher A. Friesem, Department of Physics of Complex Systems, the Weizmann Institute of Science, P.O. Box 26, Rehovot 76100 Israel, phone +972 8 934 3963, fax +972 8 934 4109, e-mail: friesem@wicc.weizmann.ac.il

ICTP Winter College on Interferometry and Applications in Modern Physics, 2-13 February 2004: report

Abdus Salam, a Nobel Prize-winner Pakistani physicist and Italian physicist Paolo Budini founded the International Center for Theoretical Physics (ICTP) in 1964 under the aegis of the International Atomic Energy Agency (IAEA). The main former objective of ICTP, as a unique organization, was divided into a triple purpose: promoting research in physics and mathematics in developing countries, offering to scientists training to be applied later in their countries of origin and serving as an international forum for science from all over the world.

Among its many activities ICTP organizes every year the Winter College on subjects relevant to Optics and Photonics. This *Winter College on Interferometry and Applications to Modern Physics* was the first of its kind and appeared to be quite successful -to both the Organizers and the participants. It attracted more than 80 participants from 36 countries who came to listen to 16 selected lecturers and besides, to present their own research activities in the so called LAMP (Laser, Atomic and Molecular Physics) program seminars. The same are regularly organized every year and give the opportunity to the many participants from all over the world to expose their current lines of research, motivations and projects.

The College was supported by the co-sponsoring Organizations: ICO (International Commission for Optics); OSA (Optical Society of America); SPIE (The International Society for Optical Engineering) and OWLS (International Society on Optics Within Life Sciences). Its directors, Professors A. Arimondo (University of Pisa, Italy), R. Dändliker (Univ. of Neuchatel, Switzerland), R. S. Sirohi (Indian Institute of Technology, Delhi, India) and local organizer Gallieno Denardo (ICTP), selected outstanding international lecturers. The latter covered the wide range of this fundamental field in Optics, starting with an introductory course on interferometry, the basic principles, fundamentals of diffractive optics for applications, and giving a state-of-the-art on interferometry and metrology, multi-wavelength interferometry, optical coherence tomography (white light



ICTP Campus: The ICTP Campus in Miramare, Trieste (Italy). The main building includes lecture rooms, scientific staff offices, a general library, the computer center and a cafeteria. The white building on the left is the International School for Advanced Studies. (ICTP photo archives).

interferometry), holography and speckle interferometry, principles and applications of speckle correlation techniques. They have dealt, as well, with very active branches in modern physics as cold atoms for interferometry, microfabricated interferometers, gravitational wave detectors on earth, high resolution interferometry for astronomy, neutron optics and neutron interferometry, X-ray interferometry, electron microscopy and atoms and molecules interferometry.



Prof. R. Dändliker, ICO President, presents the diploma for ICO/ICTP Award 2004 to Dr. Imrana Ashraf Zahid, in presence of Dr. Kulkarni (ICTP photo archives, Massimo Silvano)

In particular, the following lecturers were delivering specific talks: E. Arimondo (University of Pisa, Italy), M.L. Calvo (Complutense University of Madrid, Spain), E. Carlino (TASC, INFN, Trieste, Italy), M. Danailov (Synchrotron Light Laboratory, Trieste, Italy), R. Dändliker (University of Neuchatel, Switzerland), A. Di Virgilio (INFN, Pisa, Italy), A. Glindemann (European Southern Observatory, Munich, Germany), W. H. Jark (Synchrotron Light Laboratory, Trieste, Italy), T. Lasser (École Polytechnique Federale, Lausanne, Switzerland), O. Manzardo (University of Neuchatel, Switzerland), V. Osten (Institute for Gravitational Physics, Hannover, Germany), J. Schmiedmayer (University of Heidelberg, Germany), R.S. Sirohi (Indian Institute for Technology, Delhi, India), T. Tshudi (High Technical School of Darmstadt, Germany) and

I. Yamaguchi (Gunma University, Faculty of Engineering, Gunma, Japan).



Prof. R. Dändliker, ICO President, presents the diploma for ICO/ICTP Award 2004 to Dr. Revati Kulkarni, in presence of Dr. Ashraf (ICTP photo archives, Massimo Silvano)

The mentioned lectures covered a broad scope of the above subjects on basic and applied interferometry, encouraging the participation of attendees, enhancing an active and alive atmosphere with many discussions and exchanging opinions. Also, the directors and lecturers observed that the contributions by the participants during the LAMP seminars lived up to the high international standard for which ICTP Colleges are known with remarkable subjects. It was especially enhanced that the interest and enthusiasm for interdisciplinary research in emerging areas like applied interferometry, optical physics, diffractive optics, quantum optics and atom optics applications are not restricted to the industrialized countries, but its presence is quite visible in the so-called “developing countries”. These activities contribute positively to reduce the technological gap among nations and assure future available infrastructures for forthcoming generations of young researchers and future local industries. In particular, the following participants were delivering seminars on their current research activities: P. K. Buah-Bassuah (University of Cape Coast, Ghana), A. Darudi (University of Zanjan, Iran), S. Dasgupta (Indian Institute of Technology, Delhi, India), A. El-Dakroui (NILES, Cairo, Egypt), O. Mendoza Yero (Universidad de La Habana, Cuba), C. L. Pando (Universidad Autónoma de Puebla, Puebla, Mexico), S. Pradhan (Bhabha Atomic Research Center, Trombay, India), K. Rodríguez-Ramirez (Universidad Nacional de Colombia, Bogotá, Colombia), G. Rodríguez-Zurita (Universidad Autónoma de Puebla, Puebla, Mexico), A. Rostami (University of Tabriz, Iran), S. Roychowdhury Physical Research Laboratory, Ahmedabad, India), D. Sastikumar (National Institute of Technology, Tiruchirappalli, India), S. Singh (University of Namibia, Namibia), M.T. Tavassoli (University of Teheran, Iran), M. C. Tebaldi (Centro de Investigaciones Ópticas, La Plata, Argentina), M. Trivi (Centro de Investigaciones Ópticas, La Plata, Argentina), C. P. Valdés (Universidad del Valle, Colombia).

Besides, the academic and social interaction between the participants and lecturers is considered to be an extremely important aspect of the ICTP Colleges.

The three directors were especially grateful for the

support and assistance of the local organizer, Prof. Gallieno Denardo and the secretary Mrs. Lisa Iannelli.

In addition, the Trieste System Advisory Group (TSOSA) for the advancing of optics in developing countries was celebrating its annual meeting (10 February 2004) and discussing the many relevant issues and activities to be initiated for the current year 2004. The new Chair for the 2004/2005 term, Prof. Pierre Chavel, was unanimously elected.

Related link with additional information:

<http://www.ictp.trieste.it/~smr1553/>

Maria L. Calvo, ICO Secretary General

Report on the ICO Travelling Lecturer Program: A visit to University of Sao Paulo

A visit to the University of Sao Paulo (USP), Brazil for a period from 24 November to 4 December, 2003 is reported. The main program consisted on the presentation of a short course of lecturers on *Adaptive Optics*. This visit has been initiated by the Department of Astronomy of the USP. The interest of the USP's scientists to adaptive optics is connected to the fact that now Brazilian astronomers are involved in many international projects for the development of large-aperture astronomical telescopes (for instance, they are currently participating in the project of the adaptive telescope Gemini South, which is under construction in Chile). They also plan to start their own researches in the field of adaptive optics.

The lecturer, Prof. Vadim Parfenov, presented one seminar and three lectures. The attendees included specialists on the mentioned subject, students and Ph. D. students of the Department of Astronomy at the USP, specialists of the Institute for Astronomy, Geophysics and Atmospheric Sciences as well as the group of specialists of the Brazilian National Laboratory for Astrophysics.

There was a very good impression caused by this visit

which enhanced the previous collaborations. First of all, the lecturer was impressed by the high level of research activities and innovative ideas of local specialists, and many of them are internationally recognized. Another strong impression was the USP itself as a remarkable institution. It is a very modern and well-equipped scientific center, which has an impressive campus of about 10 square kilometers. Another pleasant aspect was that all colleagues there were showing a great talent and a very friendly attitude.

Furthermore, this visit has resulted in the establishment of very promising scientific contacts between the Brazilian Astronomical Society and All-Russian Research Center "S.I.Vavilov State Optical Institute", the Russian institution where the lecturer is developing his research activities. There was a main concern that courses and lecturers were useful for local specialists as well as for students.

Vadim Parfenov, Leading Research Fellow, SE Laser Physics, Research Centre "S.I.Vavilov State Optical Institute", 12, Birzhevaya liniya, St.Petersburg, 199034.

The Chair of the ICO Travelling Lecturer Program is **Prof. Glenn T. Sincerbox**, e-mail: sinbox@u.arizona.edu

Optics Update: Adaptive optics shows its commercial credentials

"The transition from one-off design to mass-market appeal must take place within the next five years if AO is ever to become a commercial success with credible and sustainable growth prospects," write the report's authors, Alan Greenaway of Heriot-Watt University and James Burnett of QinetiQ.

Some progress is already being made towards that goal: companies are starting to launch commercial products based on AO, and two wide-ranging initiatives - the Smart Optics Faraday Partnership in the UK and the Center for Adaptive Optics in the US - are driving collaborative research programs between industry and academia. But more work



A general view of the Institute of Astronomy, Geophysics and Atmospheric Sciences of the University of Sao Paulo, Brazil

is needed to ensure the technology's commercial success.

Industrial and Medical Applications of Adaptive Optics provide a strategic analysis of the latest technological advances and commercial drivers that will shape the future of AO-based systems. Technology Tracking has published the result of a compelling partnership between QinetiQ, Europe's largest science and technology organization, and

Institute of Physics Publishing. For more information see www.technology-tracking.com.

The report is currently available with a 40% introductory discount. To secure your discount, or to see a copy of the Executive Summary and Table of Contents, contact **Susan Curtis** (susan.curtis@iop.org) at the Institute of Optics Publishing, Bristol, UK.

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

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, <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
<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, <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, onf_bpo@mail.ifmo.ru
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, <http://www.swin.edu.au/optics/cmp/owls/>

6-10 December 2004

7th Int'l Workshop on Physics and Modern Applications of Lasers

Douala, Cameroon
P.O. Box 8580, Douala, Cameroon
Fax. +237 342 6710, mkwato@yahoo.com
<http://www.lamnetwork.org/>

14-18 February 2005

8th Int'l Symposium on Laser Metrology (LM-2005)

Merida, Yucatan, Mexico
Prof. Oracio Barbosa Garcia, Centro de Inv. en Optica, A.C. Loma del Bosque No. 115, Col. Lomas del Campastre C.P. 37160, Leon Gto., Mexico, Fax. +52 01 477 773 1017, barbosag@cio.mx
<http://www.cio.mx/lm2005>

8-13 May 2005

10th Congress of the Int'l Colour Association (AIC Colour 05)

Granada, Spain
Prof. Javier Romero, Dept. de Óptica, Fac. de Ciencias, Univ. de Granada, Spain, Fax. +34 958 248533, jromero@ugr.es, <http://www.ugr.es/local/aic05/>

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>

24-26 October 2005

9th Int'l Conference on Education and Training in Optics and Photonics (ETOP)

Marseille, France
Chair Prof. François Flory
Contact Dr. Serge Ungar, POPsud, Co/EGIM, Domaine de St Jerome, F-13397 Marseille, France, Fax. +33 491 288813, serge.ungar@popsud.fr

International Commission for Optics. <http://www.ico-optics.org>; Bureau members (2002-2005): President: R. Dändliker; Past-President: A.H. Guenther; Treasurer: G.T. Sincerbox; Secretary: M.L. Calvo, Departamento de Óptica, Universidad Complutense, 28040 Madrid, Spain, e-mail: mlcalvo@fis.ucm.es; Associate Secretary: A.T. Friberg; Vice-Presidents, elected: A.A. Friesem, N. Gaggioli, G.F. Jim, B.Y. Kim, M.Kujawinska, G.C. Righini, L. Wang, I. Yamaguchi; Vice-Presidents, appointed: H.H. Arsenault, G. von Bally, A.A. Sawchuk, T. Tschudi, A. Wagué, A.M. Weiner. Senior Adviser (ad personam): P. Chavel. IUPAP Council Representative: Y. Petroff