

Report of Affiliated Commission AC.1 for 2017-2018

Affiliated Commission AC.1: The International Commission for Optics (ICO)

The International Commission for Optics 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 of Science (ICSU). Its objective is to contribute, on an international basis, to the progress and diffusion of knowledge in the fields of optics and photonics.

The Commission has three categories of members: Territorial Committee Members (53 members including 13 Associate Members), International Organization members (7 members). The governing body of ICO is its General Assembly, usually held every three years during an ICO Congress that includes an international conference on optics and photonics. Between General Assemblies, a Bureau is responsible for the conduct of the Commission. The bureau consists of the President, the Past-President, the Secretary General and the Associate Secretary, the Treasurer, and fifteen Vice-Presidents, (eight elected) of whom at least two are from industry. The bureau was renewed for the period 2017-2020 in the last general assembly celebrated in Tokyo in August 2017. The ICO president for the mentioned period is Prof. Roberta Ramponi from CNR-IFN and Politecnico di Milano (Italy).

In order to serve and be representative of the optics community worldwide, ICO maintains contacts with its Members and with optical scientists in all countries and welcomes all new contacts. Together with the other societies involved, it contributes to the coordination of international activities in optics such as in particular scientific meetings. Scientific awards are also an important ICO activity, some examples are:

Prof. Andrea Alù, Temple Foundation Endowed Professor at the University of Texas at Austin, was awarded the ICO Prize 2016 “for his groundbreaking work on mecatronics for ultrafast electronics and the localization of optical radiation in structured materials”.

Guillermo H Kaufmann, Professor of Physics with the Universidad Nacional de Rosario in Buenos Aires, Argentina, was the recipient of the ICO Galileo Galilei award for 2016. Kaufmann, also Chief Scientist of the Argentinean National Council for Scientific and Technical Research and Head of the Optical Metrology Laboratory at the Instituto de Física Rosario, received the ICO Galileo Galilei award “for the development of novel speckle interferometry techniques and their application in experimental mechanics, materials technology and nondestructive testing”.

Laura Na Liu, Professor at the Kirchhoff Institute of Physics, University of Heidelberg, and Group Leader at the Max-Planck Institute for Intelligent Systems, Germany, is the recipient of the 2016 IUPAP Young Scientist Prize in Optics for “outstanding contributions to nano-optics, nanophotonics, nanoplasmonics, and metamaterials”.

Dr G K Samanta of the Physical Research Laboratory, Ahmedabad, India, was the 2017 recipient of the Galieno Denardo Award. His most exciting work that has drawn great attention among the international community, is the demonstration of optical parametric oscillators producing high-power coherent and tunable optical beam in Airy intensity distribution.

Giulia Grancini was awarded the IUPAP Young Scientist Prize in Optics 2017 for her “deep knowledge on photophysical properties and ultrafast light-induced dynamical processes”. Giulia’s work focuses on the current scientific challenge of exploring the fundamental photophysical processes underlying the operation of advanced materials for optoelectronic application, with special attention to photovoltaics. She contributed with pioneering work to the understanding of the ultrafast interface physics that governs the operation of organic and hybrid perovskite solar cells.

Prof. Nosich was awarded the Galileo Galilei Award 2017 “for his contribution from fundamental mathematical physics studies to the modeling of actual devices for photonics and optoelectronics under comparatively difficult circumstances”. His outstanding contributions were achieved in unfavorable circumstances of Ukraine, which got independence in 1991, and made a decisive choice to join Europe in 2014. The conditions for doing research in Ukraine became hard after its independence in 1991, due to the lack of access to scientific publications, poor internet connection, and scarce funding.

The 2017 ICO Prize was awarded to Prof. Francesca Calegari, University of Hamburg, Germany, “for her innovative and pioneering research on the generation of isolated XUV attosecond pulses at the nJ-energy level and their application to the study of the electron dynamics in complex molecules”. Prof. Calegari received her PhD in Physics in March 2009. From Dec 2011 till Aug 2016 she had a permanent position as a researcher at IFN-CNR, Milan, Italy. From 2013 till 2016 she was professor of Physics at Politecnico di Milano in Milan, Italy. Since August 2016 she is Full Professor of Physics at the University of Hamburg and Leading Scientist at DESY, Hamburg, Germany.

During 2017, the main ICO activity was the celebration of its triannual General Assembly, that took place at the Keio Plaza Hotel in Shinjuku, Tokyo, Japan from 21–25 August 2017. ICO-24 was jointly sponsored by the ICO and the Science Council of Japan (SCJ) and co-sponsored by the Japan Society of Applied Physics (JSAP) and the Optical Society of Japan (OSJ). ICO-24 was also technically co-sponsored by many scientific societies including the Chinese Optical Society (COS), the Chinese Society for Optical Engineering (CSOE), the European Optical Society (EOS), the Foundation for Promotion of Electrical, Electronic and Information Engineering, the IEEE Photonics Society, the Institute of Electronics, Information and Communication Engineers (IEICE), the International Society for Optics and Photonics (SPIE), the Laser Society of Japan (LSJ), the Optical Society (OSA), the Optical Society of Korea (OSK), the Physical Society of Japan (JPS), and the Taiwan Photonics Society (TPS). The total number of participants in ICO-24 was 1003, from more than 40 countries. The Congress program of ICO-24 consisted of the opening ceremony, plenary sessions, technical sessions, the conference reception, the Congress banquet, and the closing session.

Another significant ICO activities and cosponsored events were:

- The Winter College in Optics: “Advanced Optical techniques for Bio-imaging”, 13-24 February 2017 at the ICTP, Trieste, Italy
- OASIS conference in Optics and Electro–Optics, in Tel Aviv and chaired by Abraham Katzir in February 2017.
- SPOF – Sociedade Portuguesa para a Investigação e Desenvolvimento em Óptica e Fotónica, successfully organised its third triennial international conference on Applications of Optics and Photonics, 8–12 May 2017, at the University of Algarve in the lovely city of Faro, Portugal.
- International workshop on Optics and Photonics (IWOP), organized by Dr. Imrana Ashraf, was inaugurated at the Department of Physics Quaid-i-Azam University (QAU), Islamabad, Pakistan on December 11, 2017.
- Winter College on Extreme Non-linear Optics, Attosecond Science and High-field Physics in Trieste, 5-16 February 2018.

The next ICO Executive Board and Bureau meetings will be held in Delft, NL, 6-7 October 2018, in conjunction with the European Optical Society conference EOSAM.18 (Delft, 8-12 October 2018).

Report of Affiliated Commission AC2 for May 2018

Affiliated Commission AC.2 is the International Society on General Relativity and Gravitation (ISGRG).

Meetings: ISGRG meets triennially with our next meeting, the 22nd International Conference on General Relativity and Gravitation (GR22), scheduled for July 2019 in Valencia, Spain. The Scientific Organizing Committee chaired by Prof. Vitor Cardoso of Instituto Superior Técnico (Portugal) is well underway. This meeting will be held in conjunction with the 13th Edoardo Amaldi Conference on Gravitational Waves (Amaldi13), the biennial meeting organized by WG11: Gravitational Wave International Committee (GWIC). WG13: Newtonian Constant on Gravitation will also participate in this meeting. In response to a website falsely claiming to be that for GR22, we followed the advice of IUPAP Past President B. McKellar to seek endorsement for the joint meeting. We are grateful to have received this endorsement. The conference website, <http://www.gr22amaldi13.com>, includes the IUPAP logo.

Young Scientist Prize: In 2018, we awarded the 4th IUPAP General Relativity and Gravitation Young Scientist Prize to Dr. Samuel E. Gralla of the University of Arizona. The citation reads “For his exceptional and broadly varied contributions to general relativity and relativistic astrophysics.” The official presentation to Dr. Gralla and the 2017 and 2019 recipients will be made at GR22.

Other Prizes: ISGRG offers two thesis prizes, the Jürgen Ehlers Thesis Prize in the areas of mathematical and numerical general relativity and the Bergmann-Wheeler Thesis Prize in the broad area encompassing all approaches to quantum gravity. Nominations for both prizes are currently open and will remain open through August 2018. The awards will be made at GR22.

Highlights: ISGRG was pleased to note the award of the 2017 Nobel Prize in Physics to Profs. Rainer Weiss, Barry Barish, Kip Thorne “for decisive contributions to the LIGO detector and the observation of gravitational waves” and, on 17 August 2017, the detection of the first binary neutron star merger and its aftermath, by the LIGO and Virgo Collaborations and by hundreds of astronomers around the world. This was the first event ever recorded in both gravitational and electromagnetic waves.

Submitted by

Beverly K. Berger
Secretary, ISGRG

Report from AC3 International Commission for Acoustics (ICA) to IUPAP

April 2018

1. ICA Governance. The ICA is composed of the acoustical societies from member countries plus international affiliate organizations which themselves have individual members distributed across the world and also organize international conferences every one or two years.

Since October 1, 2016, and following the elections held during the General Assembly held in Buenos Aires, the new board consists of the following members: The executive: President Michael Taroudakis (Greece), Vice-President Jeong-Guon Ih (Korea), Secretary General Michael Stinson (Canada), Treasurer Antonio Perez Lopez (Spain), Past-President Marion Burgess (Australia). The remainder of the board are Julio Cordioli (Brazil), Dorte Hammershøi (Denmark), Bertrand Dubus (France), Martin Ochmann (Germany), Antonino Di Bella (Italy), Kohei Yamamoto (Japan), Grazyna Grelowska (Poland), Monika Rychtarikova (Slovakia), Kerstin Persson Waye (Sweden) and Mark Hamilton (USA). Thus the 15 member board contains 5 females.

The ICA Board meets once per year to discuss all ICA administrative issues. Last year the ICA Board met on 26 and 28 June 2017, during the 3rd Joint Meeting of the Acoustical Society of America and the European Acoustics Association held in Boston with nearly all Board members present. The Association of Acoustics and Vibration Indonesia (AAVI) was approved as an Observer Member and the Taiwan Acoustical Association was approved as a Member Society with 4 shares. The ICA is now composed of 47 Member Societies, 8 International Affiliate Members, and 5 Observer Members. The legal status of the ICA has been under consideration and after considering the options, it was agreed at this meeting to start the procedures for the official registration of the ICA as a nonprofit organization under the Spanish law. These procedures are underway. It is expected that the documentation for official registration of the Commission will be approved at the 2018 ICA Board meeting with the final registration approval obtained at the ICA General Assembly in 2019.

The 2018 ICA Board meeting will be held in Hersonissos, Crete, on the 31 May at Creta Maris Conference Center, host of the EURONOISE 2018 Conference to be held 27-31 May 2018.

Marion Burgess, Past President of ICA represented ICA in the IUPAP General Assembly held in Sao Paolo (Brazil) in October 2017. Jeong-Guon Ih, Vice-President of ICA represented ICA in the ICSU General Assembly held in Taipei 23-24 October 2017.

2. Symposium Support The ICA allocates up to 5,000 EUROS annually for sponsorship of specialty symposia in acoustics. In conjunction with the Acoustical Society of America (ASA), the ICA accepts the applications for allocation of up to 2,000 USD for specialty symposia that comply with the conditions for the special ASA

support.

There were 11 applications for 2018 funding from the ICA/ASA Specialty Symposia sponsorship program. These applications were evaluated by a committee comprised of the ICA Executive and the ASA Committee on International Research & Education and the funding allocations approved by the ICA Board.

The symposia receiving some ICA funding for meeting in 2018 are:

- 8th Congress of Alps Adria Acoustics Association (Croatia)
- XI Iberoamerican Congress on Acoustics, 49th Spanish Congress on Acoustics, X Iberian Encounter on Acoustics (FIA -- Spain & Portugal)
- Baltic-Nordic Acoustic Meeting (Iceland)
- WESPAC 2018 (India)
- 8th International Conference on Acoustics & Vibration (Iran)
- 22nd Conference on Acoustic and Biomedical Engineering (Poland)
- 4th International Conference on Synthetic Aperture Sonar and Synthetic Aperture Radar (UK)
- 10th International Conference on Auditorium Acoustics (UK)
- International Symposium on Nonlinear Acoustics (USA)

3. ICA Congress

The next ICA Congress (23rd ICA congress) will be held in the historical city of Aachen, Germany, 9-13 September 2019. This congress is jointly organized by the German Acoustical Society, DEGA, and the European Acoustics Association, EAA. EAA's EUROREGIO conference with its "EAA Summer School" for young acousticians at MSc and PhD level will be integrated into ICA 2019 and will be held in Leuven, Belgium. The ICA technical congress program will include plenary lectures as well as keynote, invited, contributed, and poster papers covering all aspects of acoustics. Two satellite events are associated with ICA/EUROREGIO 2019:

- ISRA 2019 – International Symposium on Room Acoustics, Concertgebouw Amsterdam (<https://www.concertgebouw.nl/en/history>), and
- ISMA 2019 – International Symposium on Musical Acoustics, Detmold, Germany (<http://www.hfm-detmold.de/en>).

The Congress Chairman is Prof. Michael Vorländer (RWTH Aachen University) former President of the ICA. More information on the Congress can be found on the website www.ica2019.org.

During the Board meeting in Buenos Aires on 2016, it was decided that the 2022 ICA congress will be held in Gyeongju, South Korea 24-28 October 2022. Prof. Jeong-Guon Ih (vice President of the ICA) will be the General Chair and Prof. Chan Hoon Haan will be the Technical Program Chair. Preparations for this Congress are well underway.

4. International Year of Sound

The progress on the adoption of an International Year of Sound (IYS) has required a change in approach. First our intent for an IYS in 2019 was superseded by the actions for an Int Year of the Periodic Table (IYPT) which had a definite 150 year anniversary in 2019. As our main reason for 2019 was the link with the ICA in Aachen we decided to gain diplomatic support by moving our intent to 2020 leaving the way open for those proposing the IYPT in 2019.

The other factor was the actions by La Semaine du Son organisers for a UNESCO charter for this activity progressing via the communications sector created a challenging situation within UNESCO. As our goal is to provide the international focus on sound, we have mutually agreed with Christian Hugonnet, the organiser of La Semaine du Son, to work collaboratively (<http://www.lasemaineduson.org/>). The intention is to garner support so that when the UNESCO resolution for La Semaine du Son is considered by the UN we identify that a particular outcome is that 2020 is an entire year on sound. This approach linking the two activities relating to sound is supported within UNESCO administration so we have high hopes of success. Jean Dominique Polack has been the link with and we are grateful for his efforts. Marion Burgess and Jean Dominique Polack represented ICA in the opening of La Semaine du Son from 20 January to 4 February 2018 in Paris which involved UNESCO with a major concert occurring in the UNESCO on 23 January and including a performance by Jean-Michel Jarre, a UNESCO ambassador and keen supporter of a year of sound. Marion Burgess and Jean Dominique Polack had extended talks with UNESCO executives on the road-map towards the final decision on the IYS by the UN.

In this respect, ICA is grateful for the continuous support from IUPAP for an IYS.

Michael Taroudakis, President 2016-2019
Marion Burgess, Past President 2016-2019



**International Commission on Medical Physics Committee, IComMP
International Union of Pure and Applied Physics (IUPAP)
Affiliated Commission AC4: Medical Physics**

Fridtjof Nüsslin, Chair

**Report on Activities from September 2015 till September 2017
Addendum for the period Oct 2017 – April 2018**

1. International Day of Medical Physics (IDMP):

Traditionally the IOMP is celebrating the birthday of Marie Sklodowska-Curie (7th November) as the International Day of Medical Physics. As announced in the previous report, in 2017 it is her 150th birthday, good reason to specifically dedicate the IDMP to women by promoting lectures and events under the theme “*Providing a Holistic Approach to Women Patients and Women Staff Safety in Radiation Medicine*”. The celebrations of the IDMP 2017 were web-casted to all medical physicists globally. A number of countries held special celebrations and prepared posters with prominent women medical physicists.

2. International Women’s Day:

Within the framework of the International Women’s Day the IOMP published a call challenging the member organizations to approach all institutions - governments, administrations, schools etc – to emphasize the many job opportunities in health care in future. WHO estimates about 40 million positions in this field for 2030.

3. Asia Oceania Congress of Medical Physics in Jaipur 2017:

Under the general conference theme “Advances in Medical Physics: shaping the future of modern healthcare” emerging trends in Medical Physics with particular emphasis on radiology, radiotherapy, nuclear medicine, biophysics, radiobiology and biomedical engineering have been discussed. More than 850 delegates from 30 countries attended the meeting. AOCMP turned out to be the most relevant gathering of the medical physics community in Asia. Most of the IOMP Executive Committee attended the AOCMP (associated with the Annual Conference of the Indian Association of Medical Physics) and held its regular meeting in Jaipur.

4. IUPAP Young Scientist Medal 2017:

The IOMP A&H committee announced the winner of the IUPAP award 2017: Dr Abdul Nashirudeen Mumuni from Ghana. Dr.Mumuni is honoured for his outstanding contribution to the advancement of quantitative Magnetic Resonance Spectroscopy techniques in studies of brain metabolism through his research. He is engaged in national and international fora for knowledge exchange and innovation, towards the advancement of Medical Physics applications. With the IUPAP YSc award his character of support, mentorship and innovation in coordinating matters of transferrable skills in both Medical Physics and Radiography in Ghana is acknowledged.

5. World Congress on Medical Physics & Biomedical Engineering 2018:

The triannual global gathering of the medical physics & bioengineering community will be held in Prague/Czech Republic, 3-8-June 2018. The final programme will be available shortly. Thanks to the IUPAP congress sponsoring program it is again possible to organize a special Workshop on *Medical Physics Partnering with the Developing World*. The aim of this regular IOMP/IUPAP Workshop is to support the medical physics capacity building in the Low-and-Middle-Income countries (LMIC). Special attention will be given to the activities necessary to address the expected tripling of the profession in the coming 20 years. This Workshop is expected to attract about 100 participants, including the Presidents and senior officers of the IOMP Regional Organizations from Asia, South-East Asia, Middle East, Africa and Latin America. It is made on purpose as a satellite activity to the large World Congress of Medical Physics WC2018, which will attract approx. 2000 specialists from almost all 86 IOMP national member societies. This event will include various plenary and public lectures.

6. Project History of Medical Physics

The large project “History of Medical Physics” initiated in 2016 (J. Medical Physics International 2017, no.1 p.68) has started its first chapters related to professional development and history of diagnostic radiology physics.

7. IOMP Incorporation

From 1 Jan 2018 IOMP was incorporated with a headquarter in York, UK (at the offices of IPeM).

8. Newsletter C6:

Chair AC4 appreciated the invitation of the Chair C6 to publish an article in the C6-Newsletter “*The commissions on Medical Physics (AC4) and Biological Physics (C6) – strengthening the cooperation between two neighbour sciences under the roof of the IUPAP*”. (see report C6)

9. Change in Chairmanship AC4:

At the forthcoming World Congress on Medical Physics & Biomedical Engineering 2018, a new crew of IOMP recently elected takes office. After such a long time of nearly 12 years serving IUPAP as chair of AC4, it is time to hand over the steering wheel to a successor who will be determined by the incoming president of IOMP, Prof. Madan Rehani. This is the opportunity to express my sincere gratitude to the IUPAP, current president Kenneth Reed and his staff, in particular to Maitri Bobba, and of course to all members of AC4 and the colleagues and friends from all Commissions. It was a fantastic time and I enjoyed the many discussions throughout all branches of physics and by that to continuously learn what physics is about, to share recent developments and sometimes to get new ideas even for the own field. Physics is fascinating in all its facets, this is what I take home from my time with IUPAP.

More details about the activities of IOMP can be found in the recent issues of Medical Physics World (eMPW) and Medical Physics International (MPI), available from: www.iomp.org

Next meeting: at the World Congress for Medical Physics & Biomedical Engineering in Prague, 3-8 June 2018. Details to be announced.

Munich, April 2018

Fridtjof Nüsslin

Chair IUPAP Affiliated Commission Medical Physics, AC-4

Past-President IOMP

Slavik Tabakov, President IOMP