



Secretariat

The International Commission for Optics



## Report of Affiliated Commission AC.1 (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 (ISC). 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), and 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 the CNR Institute for Photonics and Nanotechnologies and Politecnico di Milano (Italy).

During 2018, an important ICO activity was the meeting of the ICO bureau, which took place at Westcord Hotel in Delft (The Netherlands), in coordination with the meeting of the European Optical Society (EOSAM 2018). During the meeting, several important decisions were taken, as the ICO awards, which are a crucial ICO action in terms of representing the Optics and Photonics community worldwide. The prizes approved in the last ICO bureau meeting corresponded to the following proposals:

The ICO Prize, to be given each year to an individual who has made a noteworthy contribution to optics, published submitted for publication before he or she has reached the age of 40 (specifically, the Prize winner must not have reached the age of 40 before December 31 of the year for which the Prize is recognised) was awarded to **Prof. Mikael Rechtsman**, from Pennsylvania State University, *“for his groundbreaking discovery and first demonstration of photonic topological insulators”*.

The ICO Galileo Galilei Award Committee proposed to the ICO Bureau **Dr. Debabrata Goswami** from Indian Institute of Technology, India, as the recipient for the Award for 2018 *“for extensive contributions to the frontiers of interdisciplinary research that involved both theoretical and experimental developments in the fundamental aspects of femtosecond laser-matter interactions under comparatively difficult circumstances”*.

The IUPAP prize in optics is awarded annually to a scientist who has made noteworthy contributions to applied optics and photonics during a maximum of 8 years of research experience after having earned a PhD degree. This year the committee has proposed **Dr. Can Bayram**, *“who revolutionized the way graphene has been employed, and for his major contributions to III-V photonic devices”*.

The ICO/ICTP Gallieno Denardo Award recognizes the work of young researchers from developing countries who are active in optics and photonics research and have contributed to the promotion of research activities in in their own or another developing country. Candidates must be under 40 on 31 December of the year for which the Award is given. The ICO/ICTP Gallieno Denardo Award 2018 has been awarded to: **Dr Urbasi Sinha**, Raman Research Institute, Bangalore, India, “for her pioneering research in photonic quantum technologies, contributions to cutting edge experimental research in quantum optics, and extensive and multifaceted outreach activities towards popularizing experimental optical science in India”.

ICO activities and cosponsored events approved were:

Event	Location	Requested	Approved	Budget 2018	Budget 2019	Budget 2020	Status
11th International Conference on Optics-photonics Design & Fabrication	Hiroshima	0	0	0	0	0	approved
OWLS 2018	Perth	3000	2000	2000	0	0	approved
EOSAM 2018	Delft	1175	1175	1175	0	0	approved
ISPHOA 2018	Surabaya	2500	1500	1500	0	0	approved
OPTISUD 2019	Carthage	5000	3500	0	3500	0	approved
BIOAM 2018	Palaiseau	2300	1000	1000	0	0	approved
Correlation Optics 2019	Chernivtsy	2000	1500	0	1500	0	approved
RNO 2018	Castelloon	1848	0	0	0	0	withdrawn
AOP	Lisbon	2500	1250		1250		approved
Photonics 2018	Dehli	3000	0	0	0	0	rejected
ICO GA	Dresden	0	0	0	0	0	in preparation
				5675	6250	0	11925

Other events with ICO participation were:

*February 13<sup>th</sup>, 2018: Trieste, TSOSA meeting*

Since the TSOSA Committee was founded, ICO has the pleasure and honor to chair it. The annual meeting takes place during the Winter College and is followed by the ICO-ICTP Gallieno Denardo Award ceremony.

*April 3<sup>rd</sup>-4<sup>th</sup>, 2018: Singapore, C&CC IUPAP meeting*

*May 16<sup>th</sup>, 2018: Paris, International Day of Light*

*July 3<sup>rd</sup>- 4<sup>th</sup>, 2018: Paris, ISC Foundation General Assembly*

During the ICO bureau meeting in Delft, a commemorative photo of the 70<sup>th</sup> anniversary of the first ICO bureau meeting celebrated in the same city in 1948 was taken in front of the same historic building.

Report of Affiliated Commission AC2 for October 2018  
Affiliated Commission AC.2 is the International Society on General Relativity and Gravitation  
(ISGRG).

This is an updated version of the May 2018 report.

**Meetings:** ISGRG meets triennially with our next meeting, the 22nd International Conference on General Relativity and Gravitation (GR22), scheduled for 7-12 July 2019 in Valencia, Spain. The Scientific Organizing Committee chaired by Prof. Vitor Cardoso of Instituto Superior Técnico (Portugal) has nearly completed its work. 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. Nominations for the 2019 prize will open on 1 November 2018.

**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 have closed and the selection is underway. 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 International Commission for Acoustics (ICA) to IUPAP

October 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 is now composed of 47 Member Societies, 8 International Affiliate Members, and 5 Observer Members.

This year, the ICA Board meeting was held in Hersonissos, Crete, on the 31st May 2018. The meeting venue was Creta Maris Conference Center, host of the EURONOISE 2018 Conference which was held 27-31 May 2018. During this meeting the modified statutes of the ICA to be presented at the Spanish authorities for the registration of the ICA under the Spanish law were approved. The formal registration of the ICA is a priority and especially in relation to the future operation of bank accounts.

Past President Marion Burgess represented ICA in the C&CC IUPAP meeting in Singapore, May 2018 and President Michael Taroudakis represented ICA in the International Science Council Founding General Assembly held in Paris, July 2018.

**2. ICA Registration.** The procedures for the **official registration of the ICA under the Spanish law** are underway. President Michael Taroudakis and Treasurer Antonio Perez-Lopez prepared the documents required by the Spanish Law in order that the Commission is formally registered. We are fortunate to have the procedural model of the recently completed formal registration of the European Acoustical Association under Spanish Law. The new text of the ICA Statutes was compiled and sent to the member societies for comments. Following the comments received by the member societies, the text was slightly modified and eventually approved as the final draft by the ICA Board during the Hersonissos meeting. The preparation of the text of the new Internal Regulations is underway. It is expected that the formal acceptance of the Statutes and the Internal Regulations will be done by the General Assembly in Aachen during the ICA Congress in 2019.

**3. 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. For meetings that are considered valid but do not receive funding there is the option for ICA endorsement alone. This is particularly important as the number of 'fake' conferences is increasing.

The ICA decides about the sponsorship of symposia a year before the event. Thus the decision on Symposia to be held in 2018 was taken in 2017. 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 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)
- 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).
- 8th International Conference on Acoustics & Vibration (Iran) funding provided by Acoustical Society of America

The procedure for the approval of the sponsorship for the Symposia to be held in 2019 is under-way.

## 4. ICA Congress

Preparations are under-way for the next ICA Congress which is the major event organized by the ICA. 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 will be integrated into ICA 2019. It will be held in Leuven, Belgium with a series of special training courses for both undergraduate students and students on MSc and PhD level. The technical congress program will include plenary lectures as well as keynote, invited, contributed, and poster papers covering all aspects of acoustics.

The Organizers invited distinguished scientists to co-ordinate the preparation of the structured and normal sessions for the Congress, by suggesting structured session

topics and chairs. This month the final structure of the Congress will be decided to start the paper submission process.

While it has not been identified as a problem in the past ICA the organizers have included the measures to provide mechanisms for any participants that may be subject to harassment and have advised all our member societies to follow the same procedures with their national meetings.

In accord with the recent EU regulations regarding use of personal data, the organizers are giving the clear options for those registrants to choose if they wish to receive direct mailing of future ICA activities. This will provide a new data base that will be in accord with the EU regulations and can be passed onto the future congress organizers.

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.

An official request to IUPAP to support the ICA 2019 has already been submitted.

More information on the Congress can be found on the website [www.ica2019.org](http://www.ica2019.org).

## 5. International Year of Sound

Following the decision of the ICA Board to change the goal for an International year of Sound to be approved by UNESCO and the UNs for 2019 based on the fact that there was a high competition for the proposers of an International year of Periodic Table (which indeed was approved for 2019) and the fact that La Semaine du Son (<http://www.lasemaineduson.org/>) received the UNESCO charter on sound, our new goal has been defined to propose the International Year of Sound for 2020. 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 2020 could be an entire year on sound. This approach linking the two activities relating to sound is supported informally within UNESCO and by the UNESCO Ambassador Jean Michel Jarre. Jean Dominique Polack (based in Paris) has been the link with Christian Hugonnet, the organiser of La Semaine du Son. Several actions were planned in coordination with La Semainedy Son 2018, including participation of the ICA representatives (Marion Burgess and Jean-Dominique Polack) in the opening of La Semaine du Son from 20 January to 4 February 2018 in Paris, which gave the opportunity of extended talks with UNESCO executives on the road-map towards the final decision on the IYS by the UN, and the participation of Christian Hugonnet in the ICA Board meeting (Hersonissos Crete, 31 May 2018).

During this Board meeting it has been decided that ICA and La Semaine du Son will

keep going together towards holding the IYS 2020 as one of the activities under the UNESCO Charter of Sound. In this respect, Christian Hugonnet has been seeking a meeting with UNESCO officials for endorsement of this approach. President Michael Taroudakis met with Christian Hugonnet and Jean-Dominique Polack in Paris on July 2018 to up-date the actions undertaken by both parties. We also note that there has been a number of “International Year of ...” without apparent direct UNESCO/UN approval.

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 Union of Pure and Applied Physics (IUPAP) Affiliated Commission AC4: Medical Physics**

**Prof. John Damilakis, Chair**

### **Report on Activities from September 2015 till September 2018**

#### **Background**

The International Organization for Medical Physics (IOMP) represents over 24,000 medical physicists worldwide and has 86 national member organizations, 1 affiliate and 6 regional organizations. The mission of IOMP is to advance medical physics practice worldwide by disseminating scientific and technical information, fostering the educational and professional development of medical physics and promoting the highest quality medical services for patients.

Medical Physics is a branch of Applied Physics that applies scientific principles, methods and techniques in practice and research for the prevention, diagnosis and treatment of human diseases with the specific goal of improving human health and well-being. The profession Medical Physicist has been recognized by the International Labor Organization (ILO) in 2010 as a professional group listed in the ILO classification system ISCO-08 under '*Physicists and Astronomers*'. To strengthen Medical Physics science within IOMP and to link IOMP to IUPAP the International Commission on Medical Physics (ICoMP) has been established which has been approved as IUPAP Affiliated Commission AC4.

Objectives of AC4:

- (1) to promote medical physics in its scientific and professional aspects in the physics community by interaction with the IUPAP commissions,
- (2) to specifically link to IUPAP commissions
- (3) to apply for support of the ICoMP congress series,
- (4) to participate in the IUPAP Young Scientist Award program

Mission of AC 4:

The mission of IOMP is to advance medical physics practice worldwide by disseminating scientific and technical information, fostering the educational and professional development of medical physicists, and promoting the highest quality medical services for patients.

#### **Short Report´**

##### **1. International Day of Medical Physics (IDMP):**

In 2013 the IOMP declared the 7<sup>th</sup> November, the birthday of Nobel laureate Marie Sklodowska Curie famous for her pioneering work in radiation physics and chemistry, as the annual International Day of Medical Physics (IDMP). All regional and national organizations worldwide are invited to participate by organizing activities such as



scientific and public lectures, special history events and press appearances. The IDMP 2015 was organized under the theme “Better Medical Physics – better Cancer Care in Radiation Oncology”. The IDMP 2016 was focussing at “Education in Medical Physics: The Key to Success” emphasizing the crucial importance of education and training in Medical Physics for an effective and safe use of ionizing and non-ionizing radiation in health care. In 2017, the International Day of Medical Physics (IDMP) marked the 150th birthday of Maria Sklodowska Curie. Due to this reason IOMP decided to dedicate the IDMP to women. The theme of IDMP 2017 was “Providing a Holistic Approach to Women Patients and Women Staff Safety in Radiation Medicine”. This year (2018) the theme is ‘Medical Physics for Patient Benefit’. IOMP announces all festivities related to IDMP at its specially made web site:// [http www.iomp.org/idmp/](http://www.iomp.org/idmp/) Moreover, the IOMP has established the IDMP Award since 2017. This award recognises excellence in Medical Physics with a particular view of promoting medical physics to a larger audience and highlighting the contributions medical physicists make for patient care. The IDMP Award is linked to the International Day of Medical Physics (IDMP) from which it takes its name.

## **2. Education and Training of Medical Physicists:**

The IOMP Education and Training Committee (ETC) has established the IOMP Accreditation Board to evaluate and accredit Medical Physics education and training events. An accreditation manual has been drafted to define the purpose and structures of the Board, describe main operations and the accreditation processes. A website has been created <http://www.iomp.org/?q=content/accreditation-home> to provide information about accreditation and upload the accreditation manual, application forms and related documents. The IOMP Accreditation Board will accredit medical physics degree programs and education and training events including residencies, conferences, seminars, workshops, CPD courses and other education and training events. Initially its work will be limited to accreditation of postgraduate degree courses and Continuous Professional Development programs. The ‘Master of Advanced Studies in Medical Physics’, International Centre for Theoretical Physics (ICTP) has already received full accreditation. To ensure the quality of procedures, the Board will perform accreditation processes for a selected number of events within the next months.

During the last 3 years, the ETC offered several courses in connection with conferences and represented IOMP in many scientific meetings. A new activity ‘IOMP School’ was launched at the International Conference of Medical Physics in Bangkok (2016) and the 2<sup>nd</sup> edition was organized at AOCMP-AMPICON in Jaipur (2017). The 3<sup>rd</sup> edition of the ‘IOMP School’ with more than 20 sessions is organized at the World Congress on Medical Physics and Biomedical Engineering in Prague (2018).

ETC sponsored and/or endorsed several scientific events worldwide during the last 3 years. Specifically, the ETC has sponsored the 14<sup>th</sup> Mexican Symposium on Medical Physics (Mexico City, March 18-21 2016) organized by the Medical Physics Division of the Mexican Physics Society and the Physics Institute of the National Autonomous University of Mexico, the 3<sup>rd</sup> International Conference on Medical Physics in Radiation Oncology & Imaging organized by the Bangladesh Medical Physics Society, the 17<sup>th</sup> Asia Oceania Conference of Medical Physics in conjunction with the 38<sup>th</sup> Annual Conference of Association of Medical Physicists of India (November 2017, organizers: AFOMP and AMPI) and the XII<sup>th</sup> National Medical Physics and

Biomedical Engineering Conference organized by the Bulgarian Society of Biomedical Physics and Engineering, the AAPM/ISEP international course of medical physics in Peru, the AAPM/ISEP workshop in South Africa etc.

### 3. **IOMP Women Subcommittee**

This subcommittee was established to increase female participation in Medical Physics science, education and practising in a clinical environment. We are facing a general understaffing of Medical Physicists at hospitals and universities, particularly in developing countries, and intend to take proper actions to increase recruitment of females to qualify for that most interesting profession. In this framework, IOMP decided to dedicate to women the 150<sup>th</sup> birthday of Marie Curie which will be celebrated at the 7<sup>th</sup> November 2017 as the annual International Day of Medical Physics. The IOMP-Women Subcommittee organized two women symposia at the International Conference of Medical Physics held in Bangkok 9-12 December 2016: “Women in medical physics: education and profession” and “Participation of women in medical physics scientific events”. The workshops were well-attended. During the workshops a number of actions have been initiated for the year 2017. Further activities were organized for the Asia-Oceania Congress in Medical Physics during November 2017 in Jaipur India and during the World Congress in Prague (2018). A special issue on Women Medical Physicists that inspire all women around the world was published on 8th March 2017 (International Women's Day).

### 4. **International Conference on Medical Physics (ICMP), Bangkok, 9-12 December 2016 and World Congress on Medical Physics and Biomedical Engineering, Prague, 3-8 June 2018**

ICMP 2016 attracted about 800 medical physicists, most of these from Asia. Beyond the wide scale of topics of medical physics science 2 events should be mentioned here. The IOMP Subcommittee organized a session on **Women in Medical Physics**, their role and specific problems. The other event which particularly benefits from the IUPAP Congress Sponsoring Program was the workshop on **Building Professional Capacities in Developing Countries**. Against the current trend of a significant increase of medical physicists in the developed countries the status in LMI-countries is far behind, particularly in Central and South America and in Africa. As an example, currently the African continent with population of 1.1 billion (15.5 % of the people on the planet) has about 400 medical physicists (less than 2% of the global number of medical physicists). These geographical areas need the attention of all in our profession and require proper measures to build up capacities in science, education and clinical service. Furthermore, the John Mallard Award was presented at the 22nd ICMP in Bangkok, Thailand. The winner was Prof. Paul Marsden, one of the pioneers of the PET-MR imaging system.

The World Congress, which is held once every three years, is one of the largest gatherings of medical physicists in the world. It brings together medical physicists, biomedical engineers and other professionals in related fields from all over the world. An excellent scientific programme was planned for World Congress 2018 in Prague with 5 plenary and 33 keynote lectures on topics of general interest of medical physics. The Congress had more than 900 oral presentations and over 800 poster presentations covering 23 topics. The Congress was accredited by the European Board for Accreditation in Medical Physics (EBAMP) as CPD event for Medical Physicists at EQF (European Qualification System) Level 7.

**5. IUPAP Congress Sponsoring Program:**

The IUPAP funding has been used to organize a series of Conferences and Workshops on Medical Physics in the Developing Countries at the IOMP World Congresses and International Conferences on Medical Physics (Toronto 2015, Bangkok 2016, Prague 2018). An application has been submitted to financially support the next IOMP International Conference in Medical Physics, Santiago, Chile, October 2019).

**6. IUPAP Young Scientist Medal 2016:**

The winners of the IUPAP award have been G.Massillon, Mexico (2015), F.Hasford, Ghana (2016) and A.Nashirudeen Mumuni , Ghana (2017).

September 2018

Prof. John Damilakis  
Chair IUPAP Affiliated Commission Medical Physics, AC-4  
Vice-President and President-elect, IOMP