

## **Report of Affiliated Commission AC.1 for 2015-16**

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

The International Commission for Optics (ICO), founded in 1947, 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 to the progress in the field of optics and photonics. The Commission has 53 Territorial Committee Members (including 13 Associate Members) and 7 International Organization members. The governing body of ICO is its General Assembly, which normally holds meetings every three years in connection with an international conference on optics. In the interim between General Assembly meetings, the conduct of the Commission is the responsibility of the [ICO Bureau](#).

In its capacity as a member of IUPAP and ICSU, the ICO supported, from its inception in 2009, the International Year of Light (IYL) initiative, actively promoting it through IUPAP and ICSU, essential steps on the way to securing the support of the UNESCO Executive Board. In the final stage ICO asked its Territorial Representatives to seek IYL initiative support from their ambassadors to the United Nations. In 2015 the ICO actively contributed to the celebration of the International Year of Light and Light-based Technologies (IYL2015). More than half of the ICO Bureau and over 30 other members of the ICO family attended the opening ceremony of the IYL in Merida, Mexico. In addition, the ICO provided more than a dozen national contacts for the IYL Secretariat and created an ICO Award for the promotion of optics and photonics for young people in the ICO Territories. Particular emphasis was given to activities sustainable beyond 2015 and replicable in other territories. A prize of \$5000 was awarded to the Spanish Optical Society (SEDOPTICA) for secondary school outreach activities using the European Commission-funded Photonics Explorer Kit. The Cuban ICO Territory was awarded a prize for Optics & Photonics trainees—scientists of the future in Havana. The Cuban initiative taught young people how to operate telescopes and to understand how to localize the brightest night-sky objects, including planets, satellites, constellations, and comets, and to learn practical methods of orientation using the most important stars and the main rules of the Earth's movement. Another award went to the IIS Cavazzi sez. Liceo Scientifico, Pavullo, a secondary school in Italy, which organized a one-day science fair called “Amazing Light” for middle and high school students. In addition to the thousands of activities organized worldwide by ICO Territories during the IYL 2015, the ICO contributed to the realization of the conference [Education and Training in Optics and Photonics \(ETOP 2015\)](#) in Bordeaux, France (29 June – 2 July 2015), where the ICO held its annual Bureau meeting.

In 2016, the ICO held its annual topical meeting jointly with the 117<sup>th</sup> annual meeting of the Deutsche Gesellschaft für angewandte Optik (DGaO) at the [International Conference on Applied Optics and Photonics 2016](#) in Hanover, Germany (17-21 May 2016). The opening ceremony of the meeting was attended by Dr. Gabriele Heinen-Kljajic, Minister for Science and Culture, Lower Saxony, who highlighted the inclusion in the conference program of a session on Women in Optics and Optics in the Developing world. Nobel Prize recipient Stefan Hell contributed with a plenary lecture. The ICO held an award ceremony for the ICO Prize awardee 2015, Aydogan Ozcan, Chancellor's Professor and HHMI Professor in the Electrical Engineering Department of the University of California (UCLA), “for his seminal contributions to bio-photonics technologies impacting computational microscopy and digital holography for telemedicine and global health applications.” Also honored at the ceremony was the 2015 recipient of the IUPAP Young Scientist Prize in Optics, Dr Frank Koppens from ICFO, The Institute of Photonic Sciences in Castelldefels (Barcelona), Spain, for “his

remarkable, outstanding, groundbreaking, pioneering and numerous contributions to Nano-Optoelectronics”.

During the period 2015-2016, the ICO also co-sponsored the following events:

- [Winter College on Optics: "Light: a Bridge between Earth and Space"](#), ICTP, Trieste, Italy, 9–20 February 2015
- [International Conference on Optics and Photonics \(ICOP 2015\)](#)  
Calcutta, India, 20–22 February 2015
- [Lighting UP Africa with Lasers, Optics, and Fibres \(LUPA'2015\)](#)  
Carthage, Tunisia, 15–21 March 2015
- [Discussions on Nano & Mesoscopic Optics \(DINAMO-2015\)](#)  
El Chalten, Argentina, 8–12 April 2015
- [International Conference on Optical and Photonic Engineering \(icOPEN 2015\)](#)  
Singapore, 14-16 April 2015
- [International Conference "Micro- to Nano-Photonics IV - ROMOPTO 2015](#)  
Bucharest, Romania, 1-4 September 2015
- [Mexican Optics and Photonics Meeting “MOPM 2015”](#)  
Leon, Mexico, 9-11 September 2015
- [OptoAndina 2015](#)  
Quito, Ecuador, 11-13 September 2015
- [Twelfth International Conference on Correlation Optics “Correlation Optics ’15”](#)  
Chernivtsi, Ukraine, 14-18 September 2015
- [20<sup>th</sup> Microoptics Conference \(MOC'15\)](#)  
Fukuoka, Japan, 25-28 October 2015
- [Winter College on Optics: Optical Frequency Combs - from multispecies gas sensing to high precision interrogation of atomic and molecular targets](#)  
ICTP, Trieste, Italy, 15-16 February 2016
- [ODF'16](#)  
Weingarten, Germany, 28 February – 2 March 2016
- [International Symposium “Optics and its Applications”\(OPTICS 2016\)](#)  
Yerevan-Ashtarak, Armenia, 25 – 28 July 2016
- [2nd International Seminar on Photonics, Optics and its Applications \(ISPhOA 2016\)](#)  
Legian-Kuta, Indonesia, 24–25 August 2016



# INTERNATIONAL COMMISSION FOR OPTICS COMMISSION INTERNATIONALE D'OPTIQUE

Scientific Associate of the International Council for Science, ICSU  
Affiliated Commission of the International Union of Pure and Applied Physics, IUPAP  
<http://e-ico.org>

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*"ICO, the place where the World of Optics meets"*

**Executive Committee:**

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International Council for Science – ICSU

Re: Application of the International Commission for Optics to become a Union

To Whom It May Concern:

On behalf of the International Commission of Optics (ICO), I am requesting your support in our application efforts to become an International Scientific Union of ICSU. As of 2005, we have been a Scientific Associate, and are now ready to participate on a new level of direct interaction with the other ICSU Unions such as yours.

ICSU requires letters of support from Member Unions such as your own. The following page is an overview of ICO history and the current state of Optics and Photonics for your review. A simple endorsement of how ICO as a Union will enhance ICSU's scientific activities - as explained in this overview - is the basis of what is needed. Your letter is to be addressed to:

Professor David Black  
Secretary General  
International Council for Science – ICSU

We are asking that your endorsement be emailed or postal mailed to ICO's Secretary General, Professor Angela Guzman by December 15, 2016. The collected letters will be packaged along with our application and then sent directly to ICSU.

ICO Secretariat  
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We thank you in advance for your consideration of support.

With best regards,

Professor, Dr. Yasuhiko Arakawa  
President, International Commission for Optics

**Vice Presidents, elected:**

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## ICO Information

In 1946 Prof. Pierre Fleury, then director of the *Institut d'Optique* in Paris and a French representative to the IUPAP, organized a *Reunions d'Opticiens* in Paris, 14-19 October, 1946. Scientists from 16 countries participated in this post-war European optics conference. In January 1947 the General Assembly of the IUPAP approved the appointment of a Preparatory Committee to consider the formation of an International Commission for Optics. The initial objectives of the ICO were the study of optical theory, the theoretical study and construction of optical instruments, and the physiological optics of the eye. The first official meeting of the ICO took place in the Netherlands in 1948.

Since the discovery of the laser, optical sciences have expanded to incorporate quantum and nonlinear optics, photonics, nano-optics, silicon and semiconductor optical materials science, complex dynamics, quantum computing, etc., all areas having technological applications in communications, health, material processing, and, more recently, in renewable energy generation and energy saving. Optical imaging science also plays an important role in monitoring disaster risk in general and ecosystem changes due to global warming.

Optics and photonics is no longer solely a branch of physics: it is a multidisciplinary activity and common endeavor of physicists, chemists, biologists, astrophysicists, electrical and mechanical engineers, and others - it became an enabling science. On that basis ICO as a Union has the potential to enhance ICSU's scientific activities.

A proof for the close crosslinks of optics and photonics with other disciplines are recent Nobel Prizes e.g. Stephan Hell's in Chemistry for developing an optical method for nano resolution microscopic imaging.

Many countries have created national optics and photonics initiatives as a means of improving the national economy, following the European Photonics 21 and the USA Photonics initiatives. This is a clear indication of the ability of the ICO and its member organizations to interface science and policy.

The ICO currently has over 50 member territories and 8 international member societies. Together they organized Laser Fest in 2005 in commemoration of the discovery of the laser, and last year, led by UNESCO, helped organize the International Year of Light 2015 (IYL 2015), which was celebrated worldwide and included many outreach activities for the general public, with emphasis in developing countries. A specific program within the IYL 2015 was developed in support of the Light for All initiative of the UNESCO, with solar energy-powered energy-saving light sources, demonstrating the potential of Optics and Photonics to contribute to the Science and Technology Alliance for Global Sustainability.

The ICO promotes international research collaboration through co-sponsorship of international events (10-12 per year) and fosters north-south collaboration through a traveling lecturer program. Through a Committee for the Regional Development of Optics and Photonics, ICO looks for ways to assist optical scientists and engineers in developing countries through the exchange of information with joint organization of schools, often in collaboration with the International Centre for Theoretical Physics (ICTP) in Trieste, Italy.

## **Report of Affiliated Commission AC.2 for 2015-16**

Submitted by Beverly K. Berger, Secretary

The principal event of the year for the International Society on General Relativity and Gravitation (AC2) was the triennial GR conference. The 21st International Conference on General Relativity and Gravitation, GR21, was held 10 – 15 July 2016 at Columbia University. The scientific highlights of the meeting were talks and activities related to the first direct detection of gravitational waves by the LIGO Scientific Collaboration and the Virgo Collaboration—a momentous celebration of the Centennial of Einstein's first presentation of general relativity in November 1915. Approximately 650 registered participants attended the meeting. Sponsorship from IUPAP for this meeting, and AC2's own limited funds, assisted some of these participants.

As usual, the conference had plenary talks in the morning, covering the whole field of AC2's interests. In the afternoons there were parallel contributed papers and poster sessions. There were 15 plenary talks (5 of the speakers being women) and 17 parallel sessions (7 of the chairs being women). Abstracts of all submissions became available online<sup>1</sup> after the meeting. The abstracts of all parallel session talks and posters and the slides from the parallel session talks are available on the conference website.<sup>2</sup> Slides from the plenary talks will be available soon. During the meeting, several prize winners were honored by AC2 and GWIC (WG11): The IUPAP Young Scientist Prize in General Relativity and Gravitation was first awarded at GR20 in 2013. The three winners since then, Jorge Santos, Stanford University and Cambridge University (2014), Nicolas Yunes, Montana State University (2015), and Ivan Agullo, Louisiana State University (2016) were recognized at the meeting. Through the generosity of Abhay Ashtekar, all winners received travel grants to enable attendance at the meeting. The triennial Ehlers and Bergmann-Wheeler Prizes (for the best PhD theses in classical and quantum gravity respectively) were presented to William East (Princeton University) and Lisa Glaser (Neils Bohr Institute). The annual GWIC thesis prize (for which AC2 acts as fund holder) was presented to Denis Martynov (Caltech). The Hartle Prizes for best student presentations at the meeting were awarded to Beatrice Bonga (Penn State, USA), Maria Charisi (Columbia University, USA), Lin-Qing Chen (Perimeter Institute, Canada), Philippe Landry (University of Guelph, Canada), Adam Levi (Technion, Israel), Maria Okounkova (Caltech, USA), Katharina Radermacher (KTH Royal Institute of Technology, Sweden), Helgi Freyr Rúnarsson (University of Aveiro, Portugal), John VanLandingham (University of Maryland, USA), and Serena Vinciguerra (University of Birmingham, UK). The Chandrasekhar Prizes for the best postdoctoral presentations at the meeting were awarded to David Fajman (University of Vienna, Austria), Dustin Madison (NRAO, USA), Ian Morrison (McGill University, Canada), and Adam Pound (University of Southampton, UK).

The Society also awarded Fellowships to Abhay Ashtekar (Penn State), James Hartle (UCSB), Stephen Hawking (U of Cambridge), Marc Kamionkowski (Johns Hopkins), Jerzy Lewandowski (U of Warsaw), Nergis Mavalvala (MIT), Jorge Pullin (Louisiana State U), Norna Robertson (Caltech and U of Glasgow), Kip Thorne (Caltech), and Clifford Will (U of Florida and Washington U). A special plaque was given to Malcolm MacCallum, who is well known to IUPAP, for his service to AC2 as International Committee member, Secretary, President, and Deputy President extending over 30 years. The plaque's inscription read “The members of the International Society on General Relativity and Gravitation express our deepest appreciation to

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<sup>1</sup> <http://www.gr21.org/GR21FullAbstractBooklet.pdf>

<sup>2</sup> <http://www.gr21.org/program.html>

Malcolm A. H. MacCallum for his extraordinary service to the Society and the broader scientific community.”

Following a successful event at GR20, AC2 repeated its reception for representatives of our national organizations at GR21. These organizations range in character from mailing lists to independent societies. Many are groups within larger physics societies. The representatives presented brief summaries of their organizations. Discussions centered on common issues and possible future joint activities. Representatives from organizations in Australasia, China, Germany, India, Italy, Japan, Poland, Portugal, Russia, Spain, UK, and USA participated along with the AC2 President and the Secretaries of AC2 and GWIC.

The Commission itself (alias the Society's Committee) held 3 meetings during GR21. IUPAP support for Commission meetings was used to enable a number of less well-funded members, in particular IUPAP representatives and those from developing countries, to be present.

The first meeting reviewed the previous three years' activities and included reports from the editors of the Society's journal, from GWIC, from IUPAP C&CC meetings, and from its information website.<sup>3</sup> The purpose of the second meeting was to hear bids for the site of the next meeting. It was agreed that GR22 will be held in Valencia, Spain in July 2019. As for GR20, this meeting will be held jointly with the GWIC-sponsored Amaldi13 conference on gravitational waves.

This GR22/ Amaldi13 recommendation was accepted by the General Assembly of the Society, which also elected new officers and committee members in accordance with the constitution. Eric Poisson became President, Beverly Berger was reelected as Secretary, while the previous president, Gary Horowitz, automatically became Deputy President. The Assembly also reviewed membership, finance and administration and heard the reports from the journal, GWIC, IUPAP, and Hyperspace.

The third committee meeting was to complete essential business including selection of regions for the 8 open International Committee slots for the 2019 election and suggestions for the Chair of the Scientific Organizing Committee for GR22.

As previously mentioned, the past year saw both the centennial of general relativity and the detection of gravitational waves from merging black holes. These milestones were described in the IUPAP Newsletter by Gary Horowitz<sup>4</sup> and Albert Lazzarini<sup>5</sup> respectively.

**IUPAP Representatives to AC2:** By a long-standing agreement, IUPAP appoints four members of the AC2 Committee, each for a six-year term, two changing after every GRn conference. AC2 itself nominates possible IUPAP members, seeking, in doing so, to improve geographic, subject, and/or gender balance among its members. The two IUPAP members retiring in 2016 are Nadja Magalhaes (Brazil) and David McClelland (Australia). The continuing IUPAP members are Rong-Gen Cai (China) and Sharon Morsink (Canada). AC2 proposes as the new IUPAP members Gustavo Dotti Universidad Nacional de Córdoba, Argentina) and David Wiltshire (University of Canterbury, New Zealand).

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<sup>3</sup> <http://hyperspace.aei.mpg.de/~>

<sup>44</sup> G. Horowitz, “100 Years of General Relativity,” IUPAP Newsletter, December 2015.

<sup>5</sup> A. Lazzarini, “The Discovery of a Binary Black Hole Merger by LIGO,” IUPAP Newsletter, March 2016.

## AC3 International Commission for Acoustics (ICA) Report to IUPAP C&CC meeting October 2016, Taiwan Marion Burgess ICA President 2013-2016

**1. ICA Governance** The General Assembly was held in Sept 2016 and the new board, effective from 1 October 2016 comprises 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 General Assembly was well attended and there were twenty nominations for the 15 board seats. In addition to the general management matters, the board recommended, and the General Assembly agreed, that steps should be taken to formalize/register the ICA. Based on past experience with registering affiliated organisations, it was agreed that registration in Spain or Portugal should be investigated. As well the Board and General Assembly agreed to the changes in the By Laws and Statutes to tidy up some outdated terminology and clarify the status with regard to the IUPAP. The major change in this respect was to replace the requirement for changes in the statutes and by laws to be approved by IUPAP with the requirement that they be reported to IUPAP.

**2. Symposium Support** Annually, the ICA provides support for specialist symposia and selection requires some international involvement with priority for developing countries. The ICA also coordinates the allocation of the US\$2000 support provided by the Acoustical Society of America. The reports and proceedings (if applicable) are freely available from the ICA website. The symposia supported in 2016:

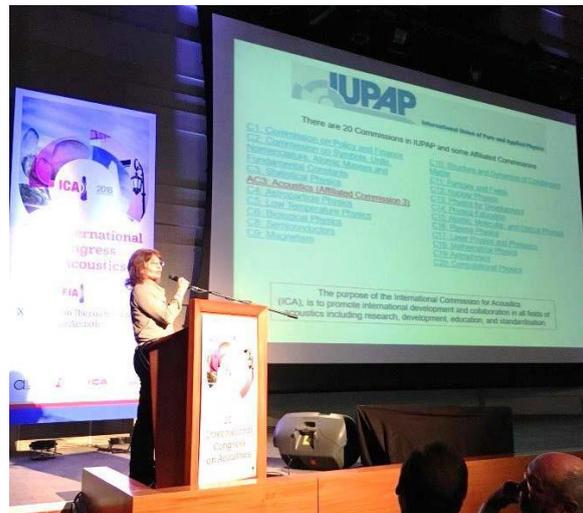
- International Symposium on Music and Room Acoustics (ISMRA 2016), September 12-14 (La Plata, Argentina) (ASA Support)
- New Sounds 2016 - The 8th International Conference on Second Language Speech, June 10-12 (Aarhus, Denmark)
- 33rd Symposium on Hydroacoustics, May 17-20 (Jurata, near Gdansk, Poland)
- Summer School 2016, June 11-12 (Porto, Portugal)
- Fourth International Workshop "Computational Experiment in AeroAcoustics" (CEAA 2016), September 21-24 (Svetlogorsk, Kaliningrad Region, Russia)
- 7th Congress of the Alps Adria Acoustics Association (AAAA 2016), September 22-23 (Ljubljana, Slovenia)

In addition the ICA provides for endorsement of meetings on application by member societies.

**3. ICA Early Career Award** The prestigious "ICA Early Career Award" was awarded to Frank Russo from Canada. He was presented with the award at the ICA Congress and presented a plenary lecture on "Understanding music perception from the perspective of oscillation and resonance".

**4. ICA Congress** The major activity for the ICA is the congress held every 3 years. The ICA 2016 was held from 5 to 9 September in Buenos Aires, Argentina. This is the first time the ICA has been held in South America. Over 600 papers were presented and over 800 participated during the congress. It was particularly noted that around 40% of the participants were students. While smaller than recent ICA congresses, the benefit of bringing such an event to South America was reflected in the enthusiasm of the participants. All the sessions had reasonable attendances, the morning and afternoon tea areas were crowded every day and the closing ceremony had a full theatre with almost as many as attended the opening.

During the opening ceremony, Prof Victoria Bekeris, Departamento de Física, Ciudad Universitaria, Argentina and member of C5 gave an excellent talk on behalf of IUPAP. The IUPAP poster was in a prime location at the entrance foyer for the duration of the congress.



*Prof Victoria Bekeris, Departamento de Física, Ciudad Universitaria, Argentina during the opening ceremony of ICA 2016*

From its resources the ICA awarded 34 Young Scientist congress attendance grants from 66 applications. These were distributed: USA 6, UK 5, Brazil 5, France 4, Australia 2, Canada 2, Korea 2, 1 (Chile, Finland, Russia, Israel, Argentine, Denmark, Sweden, and Poland).

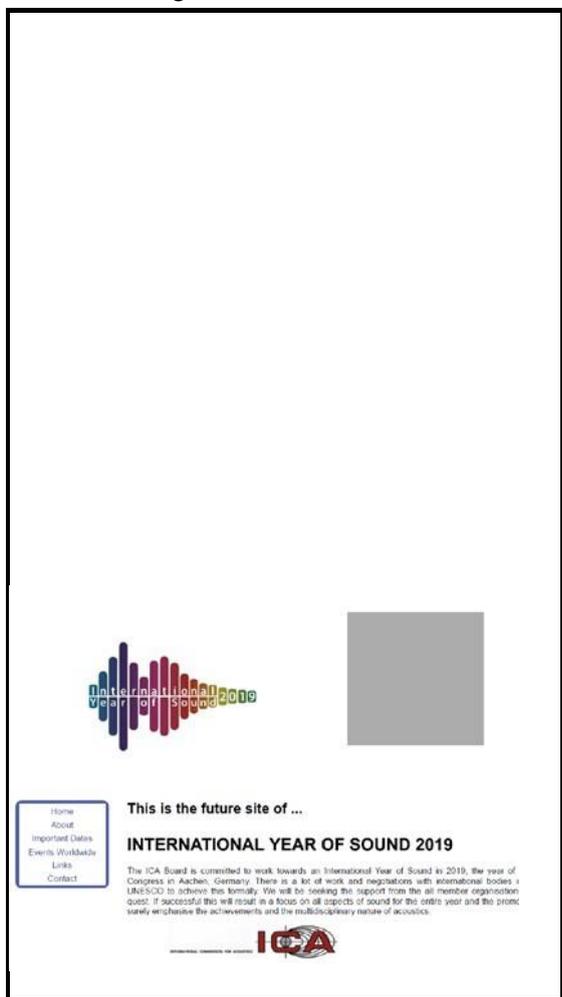
The organisers were particularly grateful for the opportunity the IUPAP grant provided to support more Young Scientist congress attendance grants and these were limited to applications from Latin America. A total of 51 such attendance grants were awarded; of which 12 were for those just finished studying and the remainder for those still Students. The distribution was 19 from Argentina, 2 from Bolivia, 11 from Brazil, 12 from Chile, 1 Spain, 3 from Peru, 2 from Uruguay and 1 from Venezuela.

Into the future the ICA 2019 is to be held in Germany and the ICA 2022 will be held in Korea.

**5. International Year of Sound** The ICA is continuing with the plans for the International Year of Sound in 2019. A steering committee and a working committee have been established. We have secured a domain name ([www.sound2019.org](http://www.sound2019.org)) and have developed a website framework. We have

received very enthusiastic support from a range of organisations and have received seed funding to support the activities leading up to the executive decision. The opportunity of key persons from the steering committee being in Europe for a noise control conference was used to arrange a meeting in Paris with Jean-Paul Ngome Abiaga, Division of Science Policy and Capacity Building, UNESCO Natural Sciences Sector. Jean Paul facilitated meetings with a number of country delegations. The outcome of these was promising.

We have a draft prospectus and a draft resolution to be presented to UNESCO. At the 2016 General Assembly of IUTAM a resolution in support of the IYS was passed and this will be particularly mentioned in the resolution. While we have a general support letter from IUPAP, a firm motion of support formally recorded in the minutes of the meeting would demonstrate that IUPAP does see this as a very worthy project. We could then specifically mention the support of IUPAP in the draft resolution along with the IUTAM.

	
Domain holding page	Draft Website framework

Marion Burgess, August 2016

## Attachment 10.1

### Revision of ICA Statutes and By-Laws terminology related to units, shares and votes

In both the ICA Statutes and the ICA By-laws, there is a Table that relates the number of shares to the number of votes for a Member Society. Two terms are used in this Table that are confusing and unnecessary. In particular, the term “unit” is introduced to mean “share” but is never used subsequently in the Statutes or By-laws. The term “Category” corresponds to the number of votes assigned to a Member Society but the term is never used after being introduced.

It is proposed to make the following change in Article 4.Organisation of the ICA Statutes and Article 4 of the ICA By-Laws:

From:

The number of official delegates in the General Assembly and votes assigned to the Member is determined according to the following IUPAP scale:

Category	I	II	III	IV	V	VI
Number of units	1	2 or 3	4 to 6	7 to 9	10 to 15	>15
Number of official delegates and votes	1	2	3	4	5	6

To:

The number of official delegates in the General Assembly and votes assigned to the Member is determined according to the following scale (which is based on the IUPAP voting scale):

Number of shares	1	2 or 3	4 to 6	7 to 9	10 to 15	>15
Number of official delegates and votes	1	2	3	4	5	6

For this change to take effect, we will need approval by a two-thirds majority of the ICA General Assembly and to advise IUPAP accordingly.

## Attachment 10.2

### Revision of ICA Statutes regarding our relationship with IUPAP

Our status within IUPAP (International Union of Pure and Applied Physics) changed in 1996 from a Commission to an Affiliated Commission, giving us more autonomy. In 1998, we became an Affiliated Organisation of IUTAM (International Union of Theoretical and Applied Mechanics) and in 2006, we became a Scientific Associate of ICSU (International Council for Science).

Our Statutes have not kept pace [with the changes in the Unions and especially the IUPAP](#). Of particular note is Article 11 of the Statutes that states that we require IUPAP approval for any changes to our statutes.

It is proposed to amend our Statutes as described in the table below. The corresponding sections of the By-laws would be amended similarly.

current Statute	proposed Statute
<p><b>Article 2. Affiliation</b></p> <p>ICA is a Scientific Associate of the International Council for Science (ICSU) and an Affiliated Commission of the International Union of Pure and Applied Physics (IUPAP) and of the International Union of Theoretical and Applied Mechanics (IUTAM).</p> <p><b>Article 6. Finance</b></p> <p>In addition to money directly allotted by IUPAP, the International Commission on Acoustics may have funds of its own consisting of subscriptions by the Members and special donations or grants. The payment of annual dues is the responsibility of the Members. Dues are payable on the first day of each year. Certain specific projects may be financed independently of the general resources of the Commission. The unitary subscription for the ICA shall be decided by the General Assembly. The method of calculating the payment for each Member shall be that provided in Article 14 of IUPAP.</p> <p><b>Article 8. General Assembly</b></p> <p>The General Assembly of the ICA will usually meet in connection with the International</p>	<p><b>Article 2. Affiliations</b></p> <p>ICA is a Scientific Associate of the International Council for Science (ICSU), an Affiliated Commission of the International Union of Pure and Applied Physics (IUPAP), and an Affiliated Organization of the International Union of Theoretical and Applied Mechanics (IUTAM).</p> <p><b>Article 6. Finance</b></p> <p><del>In addition to money directly allotted by IUPAP,</del> The International Commission for Acoustics maintains its funds primarily through subscriptions by the Members and special donations or grants. The payment of annual dues is the responsibility of the Members. Dues are payable on the first day of each year. Certain specific projects may be financed independently of the general resources of the Commission. The unitary subscription for the ICA shall be decided by the General Assembly. <del>The method of calculating the payment for each Member shall be that provided in Article 14 of IUPAP.</del></p> <p><b>Article 8. General Assembly</b></p> <p>The General Assembly of the ICA will usually meet in connection with the International</p>

Congresses on Acoustics. The following business will be carried out at these General Assemblies: a) election of the Board every third year; b) examination of a Financial Statement presented by the Board; c) agreement on a provisional budget for future years; d) discussion of questions submitted by the Members, the Board or the Executive Council of IUPAP, IUTAM and ICSU.

The voting powers of the delegations shall be in accord with those fixed by the Statutes of IUPAP (Articles 14 and 16. See also Article 4 above).

#### **Article 9. Relation with IUPAP (See also Articles 2 and 3)**

The Commission will report concerning its work and its financial position to each General Assembly of IUPAP and will receive mandates from that Assembly. The Commission will report to IUTAM annually. Affiliation of the Commission with the Union can be terminated either by the Commission at its General Assembly or by the Union at its General Assembly. In the former case, the necessary resolution must obtain a two-thirds majority among all members. In the event of disaffiliation, the special funds of the Commission are to remain its property, but any unexpected balance of money received from IUPAP shall be returned to that body.

#### **Article 11. Alterations of the statutes**

Amendments or modifications may be adopted only by the General Assembly by a two-thirds majority of the votes of the Members. Postal votes may be used in between the triennial meetings of the General Assembly. Alterations of statutes must be approved by the Council of IUPAP, which shall also constitute the final authority in regard to interpretation of Statutes.

Congresses on Acoustics. The following business will be carried out at these General Assemblies: a) election of the Board every third year; b) examination of a Financial Statement presented by the Board; c) agreement on a provisional budget for future years; d) discussion of questions submitted by the Members, the Board or the Executive Council of IUPAP, IUTAM and ICSU.

~~The voting powers of the delegations shall be in accord with those fixed by the Statutes of IUPAP (Articles 14 and 16. See also Article 4 above).~~

#### **Article 9. Relation with IUPAP, IUTAM and ICSU (See also Articles 2 and 3)**

The Commission will report concerning its work and its financial position to each General Assembly of IUPAP and will receive mandates from that Assembly. The Commission will report to IUTAM annually. The Commission responds as necessary to ICSU. The status of the Commission with the Unions can be terminated either by the Commission at its General Assembly or by the Union at its General Assembly. In the former case, the necessary resolution must obtain a two-thirds majority among all members. In the event of disaffiliation, the special funds of the Commission are to remain its property, but any residual money received from IUPAP, IUTAM or ICSU shall be returned to the relevant body.

#### **Article 11. Alterations of the statutes**

Amendments or modifications may be adopted only by the General Assembly by a two-thirds majority of the votes of the Members. Voting via email or the webpage of the Commission may be used in between the triennial meetings of the General Assembly. Alterations of statutes will be reported to the Council of IUPAP. The IUPAP shall constitute the final authority in regard to interpretation of Statutes.

## **Background information on other Affiliated Commissions of IUPAP**

**AC 1 International Commission Optics** <http://e-ico.org/about/statutes>

**Article 10 Relation with the International Union of Pure and Applied Physics** (See also Articles 2 and 3)

The Commission will report concerning its work and its financial position to each General Assembly of the International Union for Pure and Applied Physics and will receive directives from that Assembly. Affiliation of the Commission to the Union can be terminated only by the Union at its General Assembly. In the event of disaffiliation, the special funds of the Commission are to remain its own property, but any unexpected balance of money received from IUPAP shall be returned to that body.

And under **article 12** on Alterations they have

Amendments or modifications may be adopted only at a General Meeting by a two-thirds majority of the Members taking part in the vote. Alterations of Statutes must be approved by IUPAP, which shall also constitute the final authority in regard to interpretation of Statutes.

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**AC 2 International Commission on General Relativity and Gravitation**

<http://www.isgrg.org/grgcons.php>

Has only one mention in Article 4

**Article 4** In case of dissolution of the Society, all the remaining assets are to become the property of the International Union of Pure and Applied Physics (IUPAP).

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**AC 4 International Commission on Medical Physics**

<http://www.iomp.org/sites/default/files/iomp-statutes-2015.pdf>

These statutes have no mention of IUPAP



**AC4: 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 2016**

### **Background**

The International Organization for Medical Physics (IOMP) represents over 24,000 medical physicists worldwide and has 84 national member 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 (IComMP) 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 the C6 commission "Biological Physics" ,
- (3) to apply for support of the ICMP 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.

### **Members for the term 2015-2017:**

Slavik Tabakov (IOMP President)

Madan Rehani (IOMP Vice President)

Kin Yin Cheung (IOMP Immediate Past President)

Virginia Tsapakh (IOMP Secretary General)

Anchali Krisanachinda (IOMP Treasurer)

Geoffrey Ibbott (IOMP Chair Science Com)

John Damilakis (IOMP Chair Education & Training Com)

Yakov Pipman (IOMP Chair Professional Relations Com)

Tae Suk Suh (IOMP Chair Publication Com)

Simone Kodlulovich Renha. (IOMP Chair Awards & Honors Com)

**Fridtjof Nüsslin (Chair IUPAP AC4, Past President IOMP)**

Aihua Xie (Chair IUPAP C6 Biological Physics)

Sandro Scandolo (Chair IUPAP C13 Physics for Development)

Hideo Nitta (Chair IUPAP C14 Physics Education)

Ana Maria Marques da Silva (Porto Alegre, Brazil)

Eric KT Addison (Kumasi, Ghana).

### **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 forthcoming IDMP 2016 will focus 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.

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

The Global Task Force on Radiotherapy for Cancer Control (GTFRCC), created by the Union for International Cancer Control (UICC), published last year an essential report showing that addressing

the global shortfall in radiotherapy could save millions of lives and, at the same time, boost the economy of poorer countries. The report projects that investing in radiotherapy services could bring up to \$365 billion of economic benefits to low and middle income countries (LMICs) alone over the next 20 years. The detailed calculations in the GTFRCC report quantified the needs in equipment and personnel for 2015-2035. To address just the needs of cancer care in LMICs by 2035, along with 13,000 more teletherapy units, there is a need for 22,000 more Medical Physicists. This means that more than 1,000, newly trained Medical Physicists, are needed each year, for twenty years, in LMICs alone (see References 1, 2). On this background, The IOMP initiated over the recent years a series of activities with special focus on the unsatisfactory situation in developing countries like organizing training courses, building partnerships of institutions in industrial and developing countries, supporting the library program and sponsoring the attendance of conferences by scientists and students. IOMP was also partner in the large International projects EMITEL, which prepared a Dictionary of Terms (now translated into 29 languages), aiming to help the development of the profession in various countries (most of these low-and-middle-income countries). The e-Dictionary plus e-Encyclopaedia of Medical Physics are uploaded at [www.emitel2.eu](http://www.emitel2.eu)

#### References:

1. Expanding global access to radiotherapy - Rifat Atun et al,- The Lancet Oncology - Volume 16, No. 10, p1153–1186, September 2015
2. Global Task Force on Radiotherapy for Cancer Control - David Jaffray et al. - The Lancet Oncology - Volume 16, No. 10, p1144–1146, September 2015
3. **IOMP Women 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. Other special workshops on the global situation of women in medical physics will be organized at the next International Conference on Medical Physics at Bangkok this December.
4. **International Conference on Medical Physics (ICMP), Bangkok, 9-12 December 2016, “Medical Physics Propelling Global Health”:**  
This major triannual gathering of the medical physics community is in its final phase of preparation (see [www.icmp2016.org](http://www.icmp2016.org)) . Beyond the wide scale of topics of medical physics science 2 events should be mentioned here. The IOMP Subcommittee organizes a session on **Women in Medical Physics**,

their role and specific problems. The other event which particularly benefits from the IUPAP Congress Sponsoring Program is 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 requires proper measures to build up capacities in science, education and clinical service.

#### **5. Master's of Advanced Studies in Medical Physics:**

In collaboration with the ICTP Trieste the ICTP-International Medical Physics College established a Master's of Advanced Studies in Medical Physics program. Thanks to the support and direct sponsoring of the IAEA the number of students, all coming from LMICs, has been increased now to 30. IOMP is now completing the procedure for accreditation of this MSc course.

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

The selection process will be closed in September 2016 and the award will be presented to the winner at the ICMP 2016 in Bangkok.

More details about the activities of IOMP can be found in the recent issue of Medical Physics World (eMPW): <http://www.iomp.org/sites/default/files/empw-2016-01.pdf>

Next meeting: to be announced.

Munich, September 2016

Fridtjof Nüsslin

Chair IUPAP Affiliated Commission Medical Physics, AC-4

Past-President IOMP