



Letter from IUPAP president

The 2008–2011 IUPAP Executive Council and Commission members were formally elected at our General Assembly in October, 2008: Sukekatsu Ushioda (president), Cecilia Jarlskog (president-designate), Robert Kirby-Harris (secretary general), and Rudzani Nemutudi (associate secretary general).

Dr Kirby-Harris is the executive secretary of the Institute of Physics (IOP), London, where we transferred the secretariat from its previous home at the American Physical Society (APS) in Washington, D.C. Additionally, IUPAP converted its accounts from US dollars to euros and the pound sterling. Former executive secretary Judy Franz and incoming executive secretary Kirby-Harris (with assistance from APS's Jackie Beamon-Kiene and IOP's Williamina Lazaro) ensured a smooth transition during these administrative and financial moves. Thanks to all involved for their excellent work and to past president Alan Astbury for his guidance on every facet of the process.

President Astbury and Dr Franz led many new developments at IUPAP over the past three years. They oversaw a leap in membership of our organisation, from 48 countries and regions to 59. We had a mere 13 member countries – mostly European – when IUPAP was founded in Brussels in 1922. In recent years, we have made a better attempt to recruit developing countries and our 11 new members are a testament to the success of that effort. Physics education and research is stronger than ever in Asia, South America, Africa and the Middle East, and our increased numbers from those regions reflects that as well. In 2010 IUPAP is truly a global organisation. I would also like to acknowledge the work of the Commission on Physics for Development (C13) and the Commission on Physics Education (C14) in assisting developing countries to join the international physics community.

IUPAP believes strongly in the need for more women physicists, no matter what their nationality. To that end, our Working Group on Women in Physics is organising conferences specifically to encourage and welcome young women into the profession.

IUPAP has seized upon the group's proposal to purposefully include more women on our organising committees, on our programme committees and as invited speakers. We are confident that these new guidelines will result in more women entering, remaining in and having greater influence on the physics community as a whole.

Our charter reads: "The mission of IUPAP is to assist in the development of physics, to foster international co-operation in physics, and to help in the application of physics toward solving problems of concern to humanity. IUPAP carries out this mission by sponsoring international meetings; fostering communications and publications; encouraging research and education; fostering the free circulation of scientists; promoting international agreements on symbols, units and nomenclature; and co-operating with other organisations on disciplinary and interdisciplinary problems." As IUPAP continues to take on various new initiatives to address contemporary issues (such as women in physics and physics in developing countries) our core mission remains unchanged. IUPAP advocates for the free circulation of scientists. In the past on several occasions we have persuaded reluctant governments to issue visas for scientists to attend international conferences without discrimination. In 2008 at the General Assembly we adopted our Statement on the Universality of Science. In it we committed ourselves to sponsoring international conferences only in countries that uphold the principles of freedom of movement, association, expression, and communication for scientists. By adopting this principle as a formal policy, we add our voice of encouragement to all governments to respect basic rights for scientists operating in their countries. Physics is the basis for all natural science. Thus it is important for human progress that good teaching in physics reaches every level of education, in all parts of the world. IUPAP encourages this via our resolution The Importance of Active Learning and Hands-on Physics Education. This resolution expresses our aim to promote education at all levels by both improving scientific literacy generally (including among non-scientists) and supporting advanced education for professional physicists.

It is now more important than ever that physicists collaborate not only among themselves, but also with scientific communities in other disciplines. That is why we have begun active co-operation with UNESCO and the International Council for Science (ICSU). IUPAP has the opportunity to make invaluable contributions to the global dialogue on problems that know no border: the environment, energy and global warming are but a few examples.



Sukekatsu Ushioda (President)

Working Group on Women in Physics

“Women in physics” sessions are now being included in IUPAP conferences, with a total of 16 “women in physics” groups established in different countries, together with a number of regional groups. The IUPAP Working Group on Women in Physics held its third conference on 7–10 October 2008 in Seoul, Korea. The conference produced a series of recommendations for IUPAP: (i) to promote through its liaison committees and physical societies the formation of additional regional and national working groups for women in physics; (ii) to publicise site visits as an effective tool for improving the climate of physics workplaces and encourage their implementation to help workplaces become more supportive of both women and men; (iii) to actively encourage organisers of IUPAP-sponsored conferences to provide, associated with the conference programme, professional development workshops for attendees and outreach activities aimed at the public; and (iv) to engage both girls and boys from an early age in the excitement of physics.

The Seoul recommendations further charge the working group to oversee the administration of a global survey of physicists in 2009, to continue to assess progress of women in physics, to organise a conference for women in physics in 2011 and to present a report to the 27th IUPAP General Assembly in 2011. The IUPAP liaison committees and physical societies were urged to take the lead in their countries to encourage the broad participation of their members in the global survey.

Young Scientist Medal and Prize

The IUPAP Young Scientist Medal and Prize was established to encourage and recognise outstanding young physicists, who should be within eight professional research years of a PhD. The award consists of a prize of \$1000, a bronze medal, and a certificate bearing a brief citation of the recipient. The prize is proving to be one of the most successful IUPAP initiatives currently implemented, with a total of 39 awards made to date. Six awards were made in 2006, 11 in 2007, and 11 in 2008. A total of 10 awards have been made in 2009, with C18 accounting for 4. See the IUPAP website for an archive of the names of recipients and brief details of their field of expertise.

Transfer of IUPAP offices to London

Williamina Lazaro is working closely with Jacquelyn Beamon-Kiene and others in the US to finalise the transfer of the IUPAP headquarters to the Institute of Physics (IOP) in London. As a result, the IUPAP funding currency and financial statements will be adapted and quoted in Euros. The IOP web team is working jointly with the APS web team to ensure the smooth transfer of the website.

Working Group on Assessment of Individual Achievements in Large Collaborations in Particle Physics

A working group has been initiated in C11, particles and fields, to focus on the assessment of individual achievements in particle physics. Large numbers of collaborators in particle physics experiments make it difficult to fairly assess individual scientific achievements. The currently used criteria, based on lists of publications and the impact factors of papers with few authors, does not clearly address fields of science where large international collaborations are required to achieve significant scientific progress in the basic understanding of nature. The working group has proposed specific measures to enhance the visibility of individual achievements in large collaborations. The full report is available on the C11 webpage.

Statement on the Universality of Science

The October 2008 IUPAP General Assembly, held in Tsukuba, Japan, unanimously adopted the Statement on the Universality of Science as a fundamental principle to scientific progress. The principle embodies freedom of movement, association, expression and communication for scientists, as well as equitable access to data, information and research materials. In pursuing its objectives with respect to the rights and responsibilities of scientists, IUPAP actively upholds this principle, and in so doing, opposes any discrimination on the basis of such factors as ethnic origin, religion, citizenship, language, political stance, gender or age. IUPAP should (henceforth) only sponsor conferences and events at institutions and in countries that uphold this principle. Should scientists be excluded from attending IUPAP sponsored international conferences by a host institution on the basis of any of these factors, IUPAP shall register its concern at the highest level of that institution or country, and shall withhold sponsorship of any future events in that country until such exclusions have been eliminated.

Redefinition of SI units

IUPAP recognises the International System of Units for expressing the quantitative results of measurements in physics. Because of the importance of having SI units that provide the most stable and accurate standards for measurements and values of the fundamental constants, IUPAP endorsed the recommendations for the redefinition of SI units made by the Consultative Committee for Units (CCU) to the General Conference on Weights and Measures (CGPM). The CCU recommended that (i) the kilogram be redefined by assigning an exact value to the Planck constant h , (ii) the ampere be redefined by assigning an exact value to the elementary unit of charge e , (iii) the kelvin be redefined by assigning an exact value to the Boltzmann constant k , and (iv) the mole be redefined to be a certain number of entities, thereby assigning an exact value to the Avogadro constant. The above redefinitions should be implemented when there is satisfactory agreement among the experiments that realise the kilogram from the Planck-constant definition, including consistency among the watt-balance determinations of the Planck constant and the silicon-crystal determinations of the Avogadro constant. The changes should be made as soon as there is a satisfactory consistency among the experiments, should be made simultaneously and should be based on the latest values of the fundamental constants to provide continuity.

The Lindau Nobel laureate meetings

Initiated in 1951 by two Lindau physicists, (Prof Hein and Dr Parade) and Count Lennart Bernadotte, the annual Lindau meetings provide a globally recognised forum for the transfer of knowledge between generations of scientists. Lectures by Nobel laureates reflect current scientific topics and present relevant fields of research for the future. The meetings of Nobel laureates in chemistry, physiology or medicine and physics have been held since 1951. The 2009 (59th) Lindau meeting, dedicated to the field of chemistry, was held on 28 June–3 July 2009. The next interdisciplinary meeting – dedicated to chemistry, physics and medicine/physiology – will be held in 2010. The chair of IUPAP commission C15, Prof Burkhard Fricke, is a member of the committee co-ordinating the Lindau meetings.

The Importance of Active Learning and Hands-on Physics Education

The General Assembly resolution on The Importance of Active Learning and Hands-on Physics Education affirms that the integration of hands-on activities and other interactive teaching approaches leads to an increase in student understanding of physics.

IUPAP calls on national governments, physical societies, funding agencies, physicists and physics educators in all countries to support best practice physics and physics education research at all levels by encouraging teaching methods, including laboratory work, that actively engage the hands and minds of learners. Funding should be made available for well equipped laboratories and designing appropriate curricula that lay particular emphasis on teaching the skills of the experimenter. Indigenous development of low cost instruments, physics apparatus and equipment, should be supported, together with computer-based data acquisition systems for real-time measurements at an appropriate level of sophistication for a variety of uses in teaching physics in the classroom and laboratory. Support should also be given to curricula that teach physics with an appropriate diversity of methods (including hands-on approaches), that encourage critical thinking and that help students to understand how physics is relevant to their local culture and to a sustainable future for humankind.

IUPAP officers

Ushioda Sukekatsu: President
Astbury Alan: Past President
Jarlskog Cecilia: President Designate
Kirby-Harris Robert: Secretary General
Nemutudi Rudzani: Associate Secretary General
Barbosa Marcia: Vice President at Large
Barma Mustansir: Vice President at Large
Kaminskii Alexandr: Vice President at Large
Bader Samuel: Vice President, C10 chair
Henri Orland: Vice President C3 chair
Maekawa Sadamichi: Vice President C9 chair
McBride Patricia: Vice President, C11 chair
Von Klitzing Klaus: Vice President, C8 chair

IUPAP meetings

Following the October 2008 IUPAP General Assembly, two meetings were scheduled for the Executive Council and commission chairs in 2009.

6–7 February 2009, London, England, hosted by the Institute of Physics, UK

23–24 October 2009, Gleacher Center, University of Chicago, Chicago, Illinois

Date and venue of the 2011 IUPAP General Assembly to be finalised at the October meeting.

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