



# NEWS BULLETIN

WINTER 2008 EDITION

## Letter From IUPAP President

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IUPAP was inaugurated in 1922 to enhance physics through the sponsorship of the most important international conferences; at the same time ensuring freedom of access for all physicists. This responsibility remains paramount for the Union. Over the years there have been other recurring themes of sufficient importance, that IUPAP has in place concrete programs to target them.

The second General Assembly of IUPAP was held in Brussels in 1925; it lasted one hour! At the meeting it was decided that an International Conference on Physics should be organized in London, hosted by the Royal Society, and “younger physicists are encouraged to prepare and attend the Conference.” The encouragement and recognition of youth is a vital ingredient for the continued health of any subject, without it atrophy cannot be far away!

The program of awarding a Young Scientists Medal and Prize has now been adopted by essentially all of the commissions. They have willingly undertaken the considerable burden of implementing the necessary adjudication committees. In the case of C12 three awards will be made every three years; this timescale is matched to that of their largest conference. In Tokyo in 2007, at the International Conference on Nuclear Physics, three young people were recognized and at a special plenary session were invited to make presentations on their work, resulting in an interlude at the meeting which had a “refreshingly different flavor,” to quote one of the conference organizers.

In 1981, at the General Assembly in Paris, IUPAP created the Commission on Physics for Development (C13). A component of its mandate states that the work of the commission is “to help in appropriate ways the improvement of the conditions of physics and physicists in developing countries.” This statement is based on the belief that predictable and long term investment in basic science, coupled with innovation, will lead to economic benefits in a country, and will yield a core of knowledge which can be drawn upon to provide solutions to a country’s problems from within.

IUPAP firmly believes that long term investment in

physics and physicists in developing countries does produce positive benefits. The new program to expand the membership of IUPAP by introducing developing countries, approved at the Council Meeting in Prague in 2006, has now been launched and is producing results. As a result physicists from the developing world will become members of commissions and as a consequence will establish new international contacts. Additionally a form of workshop (Type D), which targets developing countries, has been introduced. These workshops should meet the needs of a developing region; they do not need to be truly international but should involve neighbouring countries. C13 will play a leading role in their implementation. One thing seems clear, IUPAP must listen to the physicists from the developing countries to understand better the most beneficial formats for the new series of meetings.

In 1999 the Working Group on Women in Physics was established. It is fair to say that this could be regarded as the first ever formal step taken by IUPAP towards trying to understand the issues around attracting young women into careers in physics, ensuring that these careers could flourish and have a real impact on the subject, and also trying to bring about a climate within which talented women physicists achieve serious positions of responsibility especially in the developed nations. IUPAP does not claim to have a single silver bullet which can change the role of Women in Physics; there isn’t one. However constant attention, continued encouragement and the occasional pressure has produced changes, and will continue to do so. IUPAP will sponsor its 3rd International Conference on Women in Physics in October in Korea, <http://www.icwip2008.org/>

For many, IUPAP is regarded as the sponsor of conferences. This is indeed its stock-in-trade. However it seems worthwhile to point out the rather long term commitments to programs such as Young Physicists, Developing Countries, and Women in Physics where benefits will only flow from staying the course.

*Alan Astbury*

## **An Update on IUPAP Membership Expansion**

At the meeting of the IUPAP Council in Prague in October 2006, approval was given to try to expand the scope of membership of IUPAP to include developing nations, by offering countries two new categories of membership B and C; these are in addition to the usual category A. The conditions, and dues for Type A, B, and C were described in detail in the IUPAP News Bulletin, Winter 2007 Edition; they can also be found on the IUPAP website (<http://www.iupap.org/exec/minutes/Plan-to-Extend-Membership.html>).

In Rio de Janeiro, in October 2007, at the Council and Commission Chairs' meeting it was a great pleasure to receive requests for membership from new nations. The countries provided details of a national organization that would undertake to pay their dues, an indication of a liaison group responsible for the contact with IUPAP, and also quite detailed information concerning their activity in physics.

The Council approved the acceptance of Algeria, Columbia, Costa Rica, and Singapore for membership under category B, and Ethiopia and the Philippines under category C.

## **The Working Groups of IUPAP**

A great deal of the work done by IUPAP for the benefit of physics is performed by its Working Groups. These are set up with an agreed mandate, and for a given term, to address a particular issue. Some of them exist for a relatively short period of time, produce a report which is accepted by Council or the General Assembly, and are then disbanded. Others are seen to have a longer term benefit, mentoring and encouraging a specific sub-field of physics, or examining some aspect which impacts the performance of physics in general. All of the Working Groups report regularly to Council or to the General Assembly, where the need for their continuance can be gauged, and decisions taken on their terms. IUPAP is very fortunate to benefit from some very impressive individuals, who give their time freely to the Working Groups, and provide excellent advice. In 2008 the estimated operating costs of the existing Working Groups is ~ \$50,000, which represents approximately 10% of the annual budget of IUPAP, making them a very cost effective way of doing business.

At the Council and Commission Chairs' Meeting in Rio de Janeiro in October 2007, reports were received from all of the current Working groups; these are summarized below.

### **The International Committee on Future Accelerators (ICFA)**

For a number of years the main responsibility of ICFA has been guiding the world community of high energy physicists towards an International Linear Collider (ILC); it has formed an ILC Steering Committee dedicated to this effort. In August 2007 ICFA and the ILCSC formally accepted from the Global Design Effort a reference design and cost estimates for the ILC. The next stage is to produce a detailed engineering design and cost; a task which is expected to be completed in 2010. At that time the ILC detector designs and costs should also become known; as a first step, the existing four detector concepts should become two by the end of 2008.

### **The Working Group on Communication in Physics**

At its meeting in London in July 2007, the group's discussion focused on open access policy in publishing. It was particularly interested in the proposal by CERN to franchise and fund the publication of the results from the future Large Hadron Collider (LHC). However the group feels that at this time the debate on open access remains wide open. Other topics which received attention were archiving, detection of plagiarism and copyright issues. The group pays particular attention to the special problems encountered by physicists in developing countries.

### **The Particle and Nuclear Astrophysics and Gravitation International Committee (PaNAGIC)**

This group was created to provide coordination in the field of astroparticle physics for world-wide experiments. PaNAGIC reports to the IUPAP Commissions on Cosmic Rays (C4), Particles and Fields (C11), Nuclear Physics (C12), and Astrophysics (C19), with its primary relation to C4 and a connection to the International Committee on General Relativity and Gravitation (AC2).

The group has tended to meet once per year, and provides a much-needed forum for the discussion of the field of interest at a world-wide level. There are now several regional committees (USA, Europe, Asia) producing

“road-maps” for astroparticle physics. The resulting large experiments will engage the world community; a situation which suggests a need for PaNAGIC’s coordinating role.

### **The Working Group on Women in Physics (WIP)**

The group met in April 2007 at Bad Honnef (Germany), where plans were discussed for the 3<sup>rd</sup> IUPAP International Conference on Women in Physics in Seoul, Korea, 8-10 October 2008. The conference will spend time in analyzing the progress in promotion of WIP, as well as providing an opportunity for some participants to share their scientific achievements with the delegates.

The contacts have been enhanced between the IUPAP group and regional Working Groups, a new survey of WIP will be launched, and enhanced funding sought for the scholarship program.

### **The International Committee on Ultrahigh Intensity Lasers (ICUIL)**

Since its creation in 2003 ICUIL has presided over massive changes in the field of ultra intense laser research. A few years ago high field science was typically done at intensities of  $10^{18}$  W/cm<sup>2</sup>; facilities are now proceeding towards  $10^{24}$  W/cm<sup>2</sup>. The number of facilities has tripled and the community of researchers is well over 1000, with rapid expansion in all regions US, Europe, and Asia, with emergence of strengthened programs in Korea and China. Exawatt level lasers are being pursued.

ICUIL organizes bi-annual conferences, 2004 (Tahoe USA), 2006 (Cassis France), and 2008 in China, at which the group holds its General Assemblies.

### **The IUPAP Nanoscience Working Group**

The subject of nanoscience engages nine of the IUPAP Commissions who are represented on the group. It was decided to assemble the multidisciplinary team, which would organize international workshops. The first of these was on Bionanoscience in Szeged Hungary in 2006. The second workshop will be on Ultracold Nanomatter, held in Toronto Canada in 2008. After assessing the outcomes from these two workshops, IUPAP, in consultation with the existing group, will likely need to refine its mandate to determine its role in fostering nanoscience within the existing commissions of IUPAP.

### **The Working Group on International Cooperation in Nuclear Physics**

IUPAP believes that in future the experimental needs of nuclear physics will require facilities, which are likely to be too expensive for a single country. The working group quickly produced a compendium of nuclear physics facilities world-wide; IUPAP Report 41 “Research Facilities in Nuclear Physics.” The group has served as an “expert witness” for the OECD Global Science Forum Working Group in Nuclear Physics, whose output should be a report targeting policy makers.

In the future the group will examine what is required for the operation of an international user facility with particular reference to access for physicists from developing countries. Examples of “big facilities” which will be looked at in detail are, a rare-isotope-beam facility, and an electron-ion collider.

### **Adjudication of claims for the discovery of New Elements**

From time to time experimental claims are made for the discovery of new elements. It is the joint responsibility of the International Union of Pure and Applied Chemistry (IUPAC) and IUPAP to adjudicate these claims. This has been done by setting up a Joint Working Group (JWG); the system has worked well, but the choice of members for the JWG has been somewhat ad hoc. Both Unions have now agreed on a procedure to arrive at the membership of any future JWG.

A standing panel of ten experts, with as wide a geographical distribution as possible, will be set-up by IUPAC and IUPAP. In the event of a claim requiring investigation, a working group of five members will be appointed from this panel.

**REMINDER**  
**IUPAP 26th**  
**General Assembly**  
**October 14 -18, 2008**

## IUPAP Medal and Prize for Young Physicists

The table below lists the awards made so far in this program; it was up-to-date at the time of the Council and Commission Chairs meeting in Rio de Janeiro in October 2007. It is becoming standard practice for the prize winners to make presentations of their work at the plenary session of the International Conference where they are recognized.

**Don't forget to submit your nominations for Commission Members**

**Deadlines:**

Liaisons—June 1, 2008

Commissions—Sept. 1, 2008

Commission Prize	Recipients	Country
Commission on Statistical Physics	Giulio Biroli Tomohiro Sasamoto	France Japan
Commission on Cosmic Rays	Maximo Ave	Spain, but currently living in the USA
Commission on Biological Physics	Habib Zaidi	Switzerland
Commission on Magnetism	Siddharth Shanker Saxena Satoshi Okamoto	UK USA
Commission on Nuclear Physics	Rainer J. Fries Kimiko Sekiguchi Yuri A. Litvinov	USA Japan Germany
Commission on Atomic, Molecular, & Optical Physics	Robin Santra	USA
Commission on Plasma Physics	Pascal Chabert	France
Commission on Astrophysics	Marta Burgay	Italy
Commission on Computational Physics	Stefano Sanvito	Ireland
International Commission on Medical Physics	Ali A. Mowlavi	Iran

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