

# **International Union of Pure and Applied Physics**

## **Meeting of Executive Council and Commission Chairs**

### **Rio de Janeiro, 5-6 October 2007**

#### **Present**

Alan Astbury (President), Yves Petroff (Past President), Sukekatsu Ushioda (President Designate), Judy Franz (Secretary General), Peter Melville (Associate Secretary General); Vice-Presidents at large: Carmen Cisernos, Chen Jia-Er, Bruce McKellar; Vice-President/Commission Chairs: Pavel Exner, Pratibha Jolly, Leslie Pendrill, Annick Suzor-Weiner; Commission Chairs: David Mukamel, Mikko Paalanen, Ulrich Nienhaus, Hiroyuke Sakaki, Bruce Gaulin, Gregor Herten, Joachim Burgdorfer, Ken-ichi Ueda, Roger Weynants, Maria Victoria Fonseca González, Peter Borchers, Ari Friberg, Odylio Aguiar, Samir Gerges, Fridtjof Nusslin

#### **1. Welcome**

The meeting was welcomed to Brazil by Sergio Rezende, Minister of Science, and Ricardo Gavalão, Director for the Brazilian Center for Research in Physics, who together described the good performance of the Brazilian economy and the expansion of universities.

#### **2. Minutes of the last meeting**

Item 13 of the minutes should read 'Nine conferences were recommended for support in 2007' (not 2008) 'for support as category A conferences ...'  
Bruce McKellar proposed and Katsu Ushioda seconded the approval of the minutes; this was agreed.

#### **3. Secretary General's report**

Judy Franz commented that this was an international group which has met around the world.

The financial report for 2007 was accepted without comment. On the budget for 2008 Judy Franz commented that:

- the working groups may be underfunded;
- there was feeling that we should do more for developing countries, but as we spend about 35% of the budget on them, we should really focus on trying to do the most appropriate things;
- the secretariat will move from the American Physical Society to the Institute of Physics in 2008 and the transfer will result in some expenses for travel to ensure a smooth handover;
- the reserves amounted to about \$1 million or about two years' operating costs.

Peter Borchers asked for more money for Commissions to enable their members to attend Commission meetings. Judy Franz noted that many Commissions do not spend all the money they are allocated, but it was agreed to propose an increase from \$5k to \$6k per 3-year period per Commission.

It was proposed that there be no increase in the dues paid by countries and that this be put to the General Assembly.

It was noted that Korea had now increased its shares in IUPAP from three to five, the UK having this year increased its shares from 12 to 15. A number of countries are in arrears in their payment of dues and these are being pursued. Argentina has been unable to pay for 2004 and 2005 and has asked if it may be excused payment for these two years, but has paid

for 2006 and 2007. It was agreed that if it pays for 2008, this will be a clear indication that it is now on track and it will be forgiven the payment for 2004/05.

Greece has been accepted as a new member subject to payment of dues. Columbia, Singapore, Algeria and Costa Rica have applied for membership under the type B criteria, agreed last year, and the Philippines and Ethiopia have applied under type C. Various other countries have been approached. Judy Franz thanked Carmen Cisneros, Annick Suzor-Weiner, Bruce McKellar, Pavel Exner and others for their help.

New guidelines for the selection of members of the IUPAC/IUPAP Joint Working Group to validate claims for the discover of new elements were presented. These have been approved by IUPAC.

#### **4. Preparation for the General Assembly**

Judy Franz highlighted some issues for discussion at the General Assembly:

- increasing the size of the Commissions from 13 to 14 members each to take account of the new members of IUPAP;
- the digital divide – what can IUPAP do to help;
- new system of units;
- access to major facilities;
- problems with visas;
- problems of doing physics in countries with small physics communities.

A major issue is election of the new Commissions. Nominations from liaison committees will open in January and close in June. Commissions then have to put in their proposals by 1 September. The total number on Commissions from each country should be approximately proportional to the number of shares held. In their proposals Commissions should take account of the liaison committee nominations, try to include a member from a developing country and someone from industry, include women (one at least), identify who are the most important candidates and provide alternatives. It should be assumed that the proposal to increase the size of the Commissions will be agreed. Council then has to propose a slate for voting on at the General Assembly. Details of the rules for how long people may serve on Commissions are available on the web – two terms unless nominated for a position of Chair, Vice-Chair or Secretary, in which case a third term is allowed. Voting at the General Assembly depends on the number of shares a country holds. In addition to these votes Commission chairs (including chairs of the Affiliated Commissions) have one vote each.

Katsu Ushioda gave an update on local arrangements in Tsukuba, Japan. Some sponsorship money had been obtained from Mitsubishi, JPS and JSAP as well as \$20k from IUPAP. Council and Chairs of Commissions will meet on Monday and Tuesday 13 and 14 October. There will be a reception for the General Assembly on the Tuesday evening. The General Assembly will start on the Wednesday morning and will look at the slate on the first day. On the Thursday afternoon there will be visits to institutes. Voting on the slate will be on Friday morning. Friday afternoon will be free, and an excursion will be organized on the Saturday.

#### **7. Review of Young Scientist Prizes**

Alan Astbury gave an update on the Young Scientist Prizes. There was a fair geographical spread of the awards and three had been made to women. It was agreed that the wording for the prizes should be standardized in line with that agreed at the previous meeting in Prague,

that the amount for the prize should be standardised at \$1000 with not more than three prizes per Commission in a three-year cycle.

## **8. Commission reports**

### **C2 Standards, Units, Nomenclature, Atomic Masses and Fundamental Constants**

Leslie Pendrill reported: As regards guides on metrology, the IUPAP 'Red Book' is now available in electronic format and the JCGM guides on Vocabulary and Measurement Uncertainty will soon be available on line. The earliest date for redefinitions of some of the SI units, Kilogram, Ampère, Kelvin and Mole is 2011. Reproducible, independent experimental verification is required prior to re-definition, and this has not been achieved to date. There is an ISO recommendation on pre-normative research in physics for nanostandardization .

### **C3 Statistical Physics**

David Mukamel reported: The Commission has been active in the organization of STATPHYS23, which took place in Genova, Italy in July 2007. This is the major conference in statistical physics and attracted over 1000 participants. The Boltzmann Medal, the most distinguished award in this field, was presented during the conference to K Binder (Germany) and G Gallavotti (Italy). The first round of the Young Scientist Prize has been concluded with the prize given to G Biroli (France) and T Sasamoto (Japan). The Commission held its triennial meeting in Genova in July.

### **C4 Cosmic Rays**

Simon Swordy was unable to attend the meeting.

### **C5 Low Temperature Physics**

Mikko Paalanen reported: The Commission held its first mid-term meeting in March 2007 in connection with the APS March meeting. Eight members and one associate member participated. The IUPAP-sponsored International Symposium on Quantum Fluids and Solids was organized by Murat Tagirov in Kazan, Russia in August with 206 participants from 16 countries. The rules for the Young Scientist Prize have been finalized and the first award will be made in 2008 in connection with the 25<sup>th</sup> International Conference on Low Temperature Physics. The Commission has been an active member of the IUPAP Working Group on Nanoscience.

### **C6 Biological Physics**

Ulrich Nienhaus reported: The Commission has been involved with the preparation of the 6<sup>th</sup> International Conference on Biological Physics (ICBP), which took place in Montevideo in August 2007. The Commission met during this conference and discussed preparation for the 7<sup>th</sup> ICBP, future activities and membership of the Commission. The first Young Scientist Prize in Biological Physics (experimental) has been awarded to Dr Habib Zaida of Geneva; the Commission did not award the second prize for theory/computaion.

### **C8 Semiconductors**

Hiroyuke Sakaki reported: The Young Scientist Prize in Semiconductor Physics will be presented for the first time at the 29<sup>th</sup> International Conference on the Physics of Semiconductors (ICPS) to be held in Rio de Janeiro in July/August 2008. The Commission meeting was held in Geneva in July 2007 during the IUPAP-sponsored Joint International Conference on Electronic Properties of Two-Dimensional Systems/ Modulated Semiconductor

Structures. Conference support for 2008 was discussed and it was decided that ICPS was the first priority followed by the 15<sup>th</sup> International Conference on Molecular Beam Epitaxy.

### **C9 Magnetism**

Dan Dahlberg was unable to attend but sent a written report. In summary: The single conference endorsed by the Commission and sponsored by IUPAP was the VIII Latin American Workshop on Magnetism, Magnetic Materials and their Applications (LAW3M) held in Rio de Janeiro in August 2007. The International Conference on Magnetism (ICM) will be held in Germany in 2009. This is the meeting at which the Young Scientist Prizes and the Magnetism Prize are made. Historically the Commission meets once every three years at ICM with a smaller meeting prior to this to reach a final decision on the prizes. In future the Commission will try to meet more frequently. There is now a website for the Commission.

### **C10 Structure and Dynamics of Condensed Matter Physics**

Bruce Gaulin reported on the work of the Commission, recommendation of conferences for sponsorship and the Young Scientist Prize.

### **C11 Particles and Fields**

Gregor Herten reported: The Commission met in August in Korea during the XXIII International Symposium on Lepton-Proton Interactions at High Energy (LP). A summary was given of several interesting developments in accelerator-based particle physics over the last year. Traditionally the Commission is involved in the preparation and supervision of two major conferences in alternate years – The International Conference on High Energy Physics (ICHEP) in Philadelphia in 2008 and the above LP conference next to be held in Hamburg in 2009. This year there is support with C4 and C12 for the XXIII International Conference on Neutrino Physics and Astrophysics. C11 has initiated a conference on Technology and Instrumentation in Particle Physics. The first will be held at KEK, Japan in 2009. The Young Scientist Prize will be awarded at ICHEP08. The Commission has initiated a working group on scientific achievements in particle physics, the motivation being that with the increasing size of experiments it will be more difficult to assess the achievements of individuals.

### **C12 Nuclear Physics**

Walter Henning was unable to attend but sent a written report. In summary: The Commission met in Tokyo in June during INPC2007, the major triennial nuclear physics conference. In addition to discussions of the consolidation and merger of related conferences traditionally sponsored by IUPAP into a single series, a major part of the meeting was devoted to deciding priorities for conferences seeking IUPAP sponsorship. There was discussion of the nuclear physics handbook prepared by the Nuclear Physics Working Group. Three Young Scientist Prizes are awarded at the triennial International Nuclear Physics Conference. The first three received their awards in Tokyo at INPC2007.

### **C13 Physics Development**

Annick Suzor-Weiner reported: The Commission members have been busy proposing names for associate members from developing countries for the other Commissions, contacting developing countries to explain how to become type B or type C members of IUPAP and making links with other societies and institutes interested in helping physics in developing countries. The Commission held its annual meeting along these lines in Trieste, hosted by ICTP with guests from CERN, TWAS, and EPS, while IOP and APS were represented by Commission members. Ten of the 13 Commission members attended along with three associate members. Exchanges and collaboration have been planned on three topics: access

to publications (development of the internet being the first priority), support to workshops and sustainable actions like supporting regional physics centres and networks.

#### **C14 Physics Education**

Pratibha Jolly reported: The Commission is organizing *ICPE 2007: Building Careers with Physics*, at Marrakech, Morocco, in November 2007. This fulfils the objective of reaching out to developing communities. A vote-based selection of *Seven Wonders of Physics* has been initiated from a shortlist of twenty one nominations. The results will be presented at the conference. The Commission's Newsletter is published regularly twice a year and is accessible from the Commission's website. Work on the second volume of the book *Connecting Research in Physics Education with Teacher Education* is in an advanced stage. This year the ICPE Medal will be given to Priscilla Laws. Deliberations are on to decide the criteria for award of the Young Scientist Prize. The Commission has facilitated the formation of the Latin American Physics Education Network LAPEN and strengthened linkages with ASPEN and GIREP. The Commission has been entrusted with implementing the action plans following the four resolutions on physics education from WCPSD. With assistance from UNESCO and some WCPSD funds, Active Learning Workshops have been organized since last October in India, Tanzania, and Brazil. Workshops have been planned in Mexico, Argentina and Mozambique. An advanced workshop entitled *PHYSWARE: A Collaborative Workshop on Low-Cost Equipment and Appropriate Technologies that Promote Undergraduate Level, Hands-on Physics Education throughout the Developing World* is being organized at ICTP, Trieste, from 27 October to 7 November 2008. It was agreed, subject to approval by Council that \$10k be allocated to this workshop.

#### **C15 Atomic Molecular and Optical Physics**

Joachim Burgdörfer reported: The annual meeting of the Commission took place in July during the 25<sup>th</sup> ICPEAC conference in Freiburg, Germany. Important issues discussed included the Young Scientist Prize; ranking of the 2008 conferences seeking sponsorship; improvement of the outreach and visibility of the Commission, including the design of an improved web page and increasing the visibility if the C15 poster at major conferences; and visa issues. The next meeting will take place in July 2008 during the ICP conference in Storrs, CT, USA. The highlight of the activities was the first award of the Young Scientist Prize to Robin Santra of Argonne National Laboratory 'in recognition of his pioneering theoretical contributions in the field of atomic, molecular and optical physics, in particular to the phenomenon of interatomic Coulombic decay'.

#### **C16 Plasma Physics**

Roger Weynants reported: The Commission met in Prague in July on the occasion of the 28<sup>th</sup> International Conference on the Physics of Ionized Gasses (ICPEG). It decided on its priorities for sponsorship of conferences for 2008. It asked for and obtained the internationalization of the programme committee for the 2008 International Conference on Plasma Physics conference (ICPP). A document was agreed specifying policy with respect to the award of the Young Scientist Prize in Plasma Physics on the basis of a two-year cycle with the presentation of the award on the occasion of the ICPP or ICPIG conferences. The 2007 prize was awarded to Dr Pascal Chabert 'for having made important contributions to the understanding of plasmas and plasma sources used in plasma processing'. The Commission noted with satisfaction the signing of the ITER agreement.

### **C17 Quantum Electronics**

Ken-ichi Ueda reported: IQEC was held in Munich in July in collocation with CLEO Europe. The Commission members attended IQEC and analyzed the situation of the three CLEOs in US, EU and PR. The result was quite positive with regard to the geographic distribution of submissions and participation. The Commission expects significant progress in quantum electronics and photonics research in Asia over the next few years. A celebration of 50 years since the first laser will be held in Hughes Laboratory during IQEC in the US in 2009.

### **C18 Mathematical Physics**

Pavel Exner reported: The Commission reviewed reports of last year's meetings. It recommends support for the Group 27 meeting in Yerevan in 2008 and early agreement to support the International Congress on Mathematical Physics in Prague in 2009. The Commission has also formed the committee for the Young Scientist Prize and has published a call for nominations.

### **C19 Astrophysics**

Victoria Fonseca reported: The 27<sup>th</sup> Texas Symposium, sponsored by IUPAP, took place in Australia with an attendance of about 300 people. The Young Scientist Prize was presented to the Italian researcher Silvia Burgay for her contribution to the study of very compact objects such as pulsars. IUPAP also sponsored the Venezuelan meeting on solar atmosphere in a non-prosperous country. C19 had an observer at the C4 meeting in Mexico at the International Cosmic Ray Symposium.

### **C20 Computational Physics**

Peter Borcherds reported: The first Young Scientist Prize was awarded to Stefano Sanvito (from Ireland). A meeting of the Commission was held in Belgium to coincide with Computational Physics Conference CCP2007. The venue of future conferences was discussed and it was agreed the Commission would support CCP2008 in Brazil, CCP2009 in Taiwan and CCP2010 in Norway. There have been preliminary discussions with C14 on a possible joint meeting on the teaching of computational physics, possibly involving other Commission as well.

### **AC1 International Commission for Optics**

Ari Friberg reported: The Commission will have its annual Bureau (Commission) and Topical meetings in Accra and Cape Coast, Ghana on 17-24 November 2007. The conferences OptoLaserMed 2007 also involves OWLS, African LAM Network and is supported by C13. An ICO regional meeting RIAO/OPTILAS takes place in Campinas, Brazil on 21-26 October 2007. During 2007 ICO is participating in eight international conferences, including ETOP9 in Ottawa. The ICO/ICTP Winter College 2007 was on fibre optics, fibre lasers and sensors. All the travelling lecturer funding for the triennial period 2005-2008 has been used up. ICO Book VI 'Advances in Information Optics and Photonics' is in preparation. ICO gives three awards annually – ICO Prize, Galileo Galilei Award, ICO/ICTP Award. ICO publishes a Newsletter, see ICO website [www.ico.optics.org](http://www.ico.optics.org)

### **AC2 International Commission on General Relativity and Gravity**

Odylio Aguiar reported: The GR18 conference was held in Sydney in July as a joint conference with Amaldi7. The standard of the plenary talks was good, but attendance was not high. The Commission's journal *General Relativity and Gravitation* has been revitalised. As the GRG Society, AC2 has undergone an impressive growth in membership and intends to strengthen its ties with national societies over the next three years.

### **AC3 International Commission for Acoustics**

Samir Gerges reported: The Commission Board met in Madrid in September 2007 during the ICA General Assembly. The next ICA General Assembly will be in Sydney in 2008. The 2007 ICA Early Career Award has been presented to Dr Nico Declercq for 'outstanding contributions to ultrasonics, particularly for studies of propagation and diffraction of acoustic waves'. There have been revisions to the statutes and bylaws, amongst other things acknowledging affiliation to IUPAP and IUTAM. Further information is available on the Commission's website

[www.icacommission.org](http://www.icacommission.org)

### **AC4 International Commission of Medical Physics**

Fridtjoh Nüsslin reported: Because of the unexpected resignation of the chair the Commission is to be reactivated. The Vice President of IOMP (an associate member of C6 since 2007) has taken charge of initiating an election of members of the Commission. The Commission organized a symposium on 'Cellular and Tissue Imaging: challenges for modern radiation therapy' at the IUPAP-sponsored International Congress of Biological Physics 2007 in Montevideo. About 70 of the 400 ICBP (mainly young people from biological physics) attended the symposium. Biological imaging turned out to be an attractive issue bridging medical physics and biological physics. Future actions include projects in co-operation with C6 and other Commissions. An invitation to C6 and other Commissions to contribute to the programme of the World Congress on Medical Physics and Biological Engineering in Munich in 2009 will be sent out shortly. IUPAP sponsorship will be sought for this triennial conference, the most important of the medical physics community.

It was noted that there are delays in getting visas for conferences, but that the delays are reducing.

## **9. Discussion of IUPAP goals for conferences and proposed changes**

Judy Franz presented some proposals regarding workshops in developing countries for which type B and C members could bid. It was decided that a figure of \$30k per year be set aside for this. To release some money for this IUPAP could stop providing travel money for Category C conferences, only recently introduced. C13 would take the lead on these in consultation with the Commissions relevant to the subject matter of the proposed workshop. There were some workshops applying for sponsorship this year which fell into the category of workshops in developing countries. It was decided that an additional Category D conference be introduced which catered for this, meeting the needs of the region rather than being truly international or of world-class scientific content. Peter Melville will propose wording for the guidelines on the basis of that in the document circulated.

It was also agreed, in line with Judy Franz's proposal, that the rule of not supporting annual conferences be dropped, provided the conference moved between continents.

Peter Melville made various proposals for changes to the sponsorship application forms to make sure that the details we required were given and that we did not ask for information we did not need. He will work up the agreed changes. It was also agreed that we warn conference organizers of visa problems and include a question on visa issues in the conference report form.

Peter Melville proposed that the maximum allowable registration fee for conferences sponsored by IUPAP should be €450 for conferences in 2008 and 2009. In exceptional circumstances this may be extended to €500 where this includes food and a discounted rate is available for people

from developing countries and for students.

It was agreed that electronic publishing of conference proceedings were to be encouraged and that paper copies were no longer required. The website will be amended accordingly.

#### **10. Discussion of IUPAP membership from developing countries**

Alan Astbury reported that Type B membership had been offered to Thailand, Singapore, Malaysia and Costa Rica and that they had responded positively. The advantages of Type B membership have also been offered to Tunisia and Latvia, which are already members. Efforts were in place to try to identify five possible Type C candidates on a suitable geographic spread.

#### **11. ICSU**

Judy Franz reported that ICSU had opened a regional office in Rio. There are now African, Asia-Pacific and Latin American – Caribbean offices. There is some conflict within ICSU in that most of the money comes from countries but the science comes from the unions. A further problem is that the four geo unions work together, are strong and have disproportionate influence. Current initiatives are on human health and natural and man-made disasters, although nanoscience is starting to be important. However, ICSU speaks for all science and IUPAP should remain involved.

Yves Petroff reported on the financing of ICSU. Burton Richter had been asked to look after finance because ICSU was going bankrupt. The grant programme has had to be stopped. A revised, and more equitable fee structure has been proposed whereby the country fees are proportional to GDP and the union fees are proportional to budget. This will be voted on at the ICSU General Assembly next year.

Marcia Barbosa reported on the ICSU Grants Committee. Previous emphasis was on water and environment, and the geo unions got most of the grant money. The Grants Committee has put forward a proposal under which the grants should be based on interdisciplinarity, genuine collaboration, accord with the ICSU strategy plan of capacity building and new horizons, and benefit to people early in their careers and to women.

#### **12. Talks by Brazilian physicists**

Aloar Chaves, President of the Brazilian Physical Society was unable to attend. In his place Ronald Shellard, a member of its council, spoke at short notice about physics in Brazil in general and about the Pierre Auger Observatory in particular. The Brazilian Physical Society does undertake outreach activities but not on a large scale. In response to a question from Judy Franz on problems for physicists in Brazil he mentioned the timing of financing as an issue. Although the number is unknown, a lot of PhD physicists go into industry, but a problem is that there are certain types of job that the engineers do not want physicists to undertake.

Martin Makler, a young researcher, gave a good summary of work on dark matter, dark energy, etc.

#### **13. Review of proposed conferences for 2008/09**

After a full discussion it was decided to recommend to Council for sponsorship in 2008 five category A conferences, and a further one for endorsement (i.e. approval but no money); 11 category B conferences, with a further three if money were sufficient, and a further one for endorsement; four category C conferences; and three of the new type category D conferences.



In addition early approval was recommended for two category A conferences in 2009 and one in 2010.

#### **14. IUPAP and the physics of the environment**

Alan Astbury reported that he had proposed to IUGG a joint conference on physics and the environment; IUGG has since moved its priorities to hazards, in line with UNESCO, but a joint session at an IUGG conference was a possibility. It was important to establish what environmental activities IUPAP was involved. Joachim Burgdörfer, Leslie Pendrill, Hiroyuke Sakaki and Samir Gerges commented on environmental aspects of physics within C15, C2, C8 and AC3 respectively.

#### **15. Report from the ICSU office in Latin America**

Alice Abreu reported: The inauguration ceremony had been on 18 April 2007. A regional committee had established with four priorities: mathematics education, biodiversity, natural disasters, sustainable energy. Science plans for each of these areas were being developed. Alan Astbury commented that the ICSU regional offices could be of assistance in planning workshops in developing countries.

#### **16. Discussion of reports from working groups**

Judy Franz commented that written reports had been received from each of the working groups and that at the General Assembly it would be necessary to decide which working groups should continue. Alan Astbury noted that the Working Group on Communications had been revitalized. PaNAGIC (Particle and Nuclear Astrophysics and Gravitational International Committee) had done a good job in bringing Commissions together but its role is uncertain; Judy Franz will discuss with the chair how the role could be redefined and focused. Judy Franz commented that the Women in Physics Working Group was very active. Yves Petroff commented that ICUIL (ultra-high intensity lasers) had been doing a good job. Mikko Paalanen reported on the Nanoscience working Group. Judy Franz was concerned that the small conferences that the working group wanted were expensive and may not be viable. It was agreed to see how the conference on Ultracold Nanomatter goes in February 2008. The Working Group on International Cooperation in Nuclear Physics was very active.

#### **17. World Conference on Physics and Sustainable Development**

Judy Franz commented on future activities on the four themes. Physics education is going well, with workshops and conferences organized. Economic development is working well too with the workshops on economic development for physicists from developing countries. As regards energy and environment, a workshop on energy was being organized in Ghana next year. Yves Petroff commented that physics and health had covered only radiotherapy and diagnosis and should be expanded.

#### **18. UNESCO activities**

UNESCO-IUPAP partnership is being strengthened in particular with regard to the UNESCO International Basic Sciences Programme.

#### **19. AAPPS and APCPT (Asia Pacific)**

Judy Franz reported on the Asia Pacific Physics Conference, the Association of Asia-Pacific Physical Societies (AAPPS), and the Asia Pacific Center for Theoretical Physics (APCTP). Peter Fulde from Germany had now been appointed to head APCTP, which is expanding its activities. AAPPS has a magazine which is in paper form but should also be electronic. Hiroyuke Sakaki said that he had recently been appointed to the board and that the magazine

was financed by Taiwan. Katsu Ushioda commented that younger people have become involved in AAPPS and it is becoming more active. It was agreed that closer links be formed with AAPPS (and EPS) and that links with their websites be set up. It was agreed that the IUPAP newsletter should mention AAPPS and APCTP.

#### **20. UK's proposed boycott of Israeli academics**

The University and College Union's proposed boycott has been called off on legal grounds. Annick Suzor-Weiner drew attention to the problems of Palestinians who are prevented by the Israelis from going to the UK to study. Judy Franz stated that we should reaffirm our commitment to the free movement of scientists.

#### **21. New business**

Judy Franz commented on the need for more hands-on science, needed now in particular as children have fewer toys and use computer games instead – computer simulation is not enough. Yves Petroff stressed the need to warn developing countries about the need for hands on physics as well as theory. Ari Friberg commented that there is a shortage of theoretical work on optics, in Africa in particular; people do not want to come to a conference on the theory.

Pratibha Jolly asked Commission Chairs to prepare some material on the teaching of their fields of physics for an electronic resource.