
International Union of Pure and Applied Physics

Meeting of Executive Council and Commission Chairs

London, United Kingdom, 6-7 February 2009

Present:

Sukekatsu Ushioda (President), Alan Astbury (Past President), Cecilia Jarlskog (President-Designate), Robert Kirby-Harris (Secretary General), Peter Melville (Past Associate Secretary General); Rudzani Nematudi (Associate Secretary General), Williamina Lazaro (Administrator); Vice-Presidents at large: Alexander Kaminskii, Marcia Barbosa, Mustansir Barma; Vice-President/Commission Chairs: Peter J. Mohr, Henri Orland, Klaus von Klitzing, Samuel Bader, Patricia McBride Commission Chairs: Dan-Olof Riska, Kennedy Reed, Burkhard Frickle, Padma Kant Shukla Alan Shore, Herbert Spohn, Maria Victoria Fonseca, James Gurbenatis, Maria L. Calvo, Samir N.Y. Gerges, Fridtjof Nüsslin, John Saunders (for Robert Hallock), Raul Grigera (for Jose N Onuchic), Malcolm McCullum (for Abhay Ashtekar), Robert Lambourne (by phone for Pratibha Jolly)
In attendance: Judy Franz (by phone)

Apologies:

Apologies received from: Suresh Tonwar, Robert Hallock, Jose Nelson Onuchic, Sadamichi Maekawa, Pratibha Jolly, Abhay Ashtekar

1. Welcome and introductions

President Sukekatsu Ushioda welcomed everyone to the meeting.
All commission and council members introduced themselves.

2. Minutes of the Meeting held in Tsukuba

Minutes of the 13-14 October 2008 meeting in Tsukuba, Japan, were noted.

3. IUPAP Overview

President Sukekatsu Ushioda gave an overview of what should be accomplished in the next three years. He highlighted the need for council and commission members to be energetic and also enjoy their work. He noted in particular the global decline in the number of students taking Physics as a major subject. Main problem is a lack of good physics/science teachers. IUPAP should put efforts to promote Physics Education and ensure physics is recognized as the most fundamental of all sciences. He further noted that raising scientific literacy generally induces people to be more rational in their thinking, and this in turn should lead to world peace and stability.

A total of 11 new members were brought on board in the past few years. Efforts to recruit new member states should be expanded to bring more Asian and Muslim nations, together with more African countries.

There is a need to ensure continuity of activities within council. This could be done by managing change in membership with approval of the General Assembly (GA). Hosting of electronic GA should be considered.

Allan Astbury noted that most people at the meeting have served on commissions, and we should remember that the IUPAP was originally formed to support best conference events. This original goal should remain.

Cecilia Jarlskog pointed out that the IUPAP had in the past played an important role in sponsoring people from the Eastern countries.

Robert Kirby-Harris highlighted the challenges of resource allocations in Britain, and reiterated the need for a strategic PR campaign which locates physics at the core of science and society. This should however be done without promoting or advocating "physics imperialism".

4. Relations with ICSU

History: Alan Astbury outlined the history of ICSU which dated back to 1919-1931 when the then International Research Council (IRC) brought a number of Unions into existence, amongst them IUPAP. The IRC became International Committee/Commission for Scientific Unions (ICSU) in 1931. ICSU was reviewed in 1996. After the review, ICSU was renamed the International Council for Science in 1998, though it retained the acronym ICSU.

Role of ICSU: Originally the role of ICSU was broadly defined as that of speaking to Governments on behalf of Global Science, but later this had to be focussed into well defined five year strategic plans. The first of the strategic plans ends in 2011 and the second in 2017.

Structure: Prof. Deliang Chen, a climate Researcher from the University of Gothenburg in Sweden, is the current executive director. With a staff complement of 15 (7 officers, 4 Union representatives and 4 national representatives) based in Paris where offices are supplied free by the French Government, the structure of ICSU is that of a small organization. ICSU is essentially run by an executive board which is answerable to the General Assembly.

Membership: ICSU has about 116 national members and 30 Scientific Unions, from which it derives scientific strength.

Financials: The annual dues are ~1.8M€ for National Members, 0.14M€ for Unions. With financial support also drawn from UNESCO, NSF and the French Government, ICSU's 2009 budget is 3.52M€.

Committees: The most important committee is the Committee for Scientific Planning and Review (CSPR) which sets priorities, takes major decisions, offers grants, and provides advice to the executive board. The Finance committee is chaired by Brian Henry, from Canada. The third committee is the Committee on Freedom and Responsibility in the Conduct of Science (CFRS) which also liaises with various scientific bodies in developing principles and guidelines to facilitate investigations against research misconduct.

Regional Offices: ICSU contributes ~150k€ for the running of regional offices, with the rest of the expenses shouldered by the host nation. The Africa regional office, established in 2005, is based in South Africa, Pretoria, where Sospeter Muhongo is the representative. South Africa recently indicated the need to review funding. The Asia Pacific Regional office, established in 2006, is based in Kuala Lumpur where Mohd Nordine Hasan is the representative. The Latin America Caribbean regional office is located in Brazil, Rio de Janeiro, with Alice Abreu as the regional representative. The Arab Region remains without an office, though there have been efforts to set up one in Egypt.

General Assemblies and IUPAP Relationship with ICSU: We should work to strengthen relations with ICSU. Noting that the last two meetings of the GAs took place in time co-incidence on opposite sides of the world, (the 2005 ICSU GA was held in Shanghai, China and the IUPAP GA in Cape Town South Africa; 2008 ICSU GA held in Maputo Mozambique and IUPAP GA in Tsukuba Japan), Alan Astbury suggested that a request could be made for ICSU meetings to be scheduled so that there should arise no coincidence with the IUPAP GAs. Tish Bahmani-Fard is the ICSU contact to co-ordinate the meeting schedules.

Links with Regional Offices: IUPAP should start by establishing and strengthening ties with regional offices. ICSU should be aware of IUPAP members in the region. This could be facilitated by ensuring attendance of type D meetings by ICSU reps. If C&CC meeting is held in a region, a meeting should also be arranged with ICSU representatives as was done in Rio.

ICSU Union Meetings: These are held once in three years. Last one held in 2007 in Rome with Judy Franz attending. Effort should be made to attend the 2010 Unions meeting.

IUPAP role in ICSU: Although it is currently not easy to define a direct role of IUPAP in ICSU programmes, there are potential opportunities within the two new programmes initiated post Maputo GA, both of which have a ten year forecast. The first is a 10 year programme of Integrated Research on Disaster Risk and the second is the Ecosystem Change and Human Well-being programme.

IUPAP should also remain aware that generally the programmes of ICSU are strategically designed to align with UNESCO which also provides ICSU funding.

Memorandum of Understanding: Robert Kirby-Harris suggested exploiting the possibility of a memorandum of understanding with ICSU on basic sciences. In response Alan indicated that ICSU was in essence a well established structure which is very well connected with Governments, and IUPAP has to engage with them on any possible front. A memorandum of understanding has been devised and is due to be signed by the two parties. It is also important for people with links to the IUPAP who are proposed and accepted to serve in ICSU committee to at least keep the IUPAP informed of the outcome of the proposal, especially where the proposed candidate has been selected.

5. Business Matters:

5.1 IUPAP 3-year cycle:

Robert Kirby-Harris outlined the 3-year meeting cycle and suggested that the northern hemispheric based reference to meetings in terms of seasons, e.g. Fall 2009, should be revisited. Meetings are normally held once a year. 2009 is the only year in which two meetings will be held. - only the first year after a general assembly has two meetings

Early 2009: Council and Commission chairs meet to organise and plan implementation of GA resolutions.

Late 2009: Council and Commission Chairs meet elected associated members. Meeting approves conferences for 2010 and beyond. Meeting receives reports from commissions and working groups. New business is considered, and C&CC meeting is followed by Council meeting.

Late 2010: Council and Commission Chairs meet. Meeting approves conferences for 2011 and beyond. Meeting receives reports from commissions and working groups. New business is considered, and Council meeting follows.

Late 2011: Council and Commission Chairs meet. Meeting approves conferences for 2012 and beyond. Meeting receives reports from commissions and working groups. New business is considered, and Council meeting follows.

Late 2011: General Assembly follows immediately after Council. Written commission reports submitted. The three year cycle repeats.

5.2 Member Countries:

Meeting noted a document indicating the member countries and commission structure. Category of Peru should be C and that of Poland should be A.

5.3 Finances:

Despite the transfer to IOP, the IUPAP financial figures are still in US-dollars. The presented budget was approved at the last general assembly together with the break-down of funding allocation

The 2009 IUPAP working budget is \$540k , with \$230k allocated to conference organization support and \$48k for conference travel grants.

Working groups allocated a budget of \$39k USD.

5.4 **Transfer of Institute of Physics:**

Williamina Lazaro is working closely with Jacquelyn Beamon-Kiene and others in the US to finalize transfer of IUPAP headquarters to the Institute of Physics in London. Funds to be transferred in instalments. From now on funding will be in Euros.

IOP web team is in discussion with APS web team to ensure smooth transfer of website.

New IUPAP letterhead has been designed and ordered.

6. **Conference Rules and Regulations:**

Rudzani Nemutudi gave a presentation outlining IUPAP conference rules and regulations.

7. **Liaison Committees, Commission structure, associate members and working Groups:**

7.1 **Role of Liaison Committees:**

Meeting noted that liaison committee members tend to be inactive, and come to life only once every three years to propose names before the general assembly. Robert Kirby-Harris stressed the importance of ensuring liaison committees are more active in the intervening period.

IUPAP Council should find a way to engage liaison committees in IUPAP activities between the GA's. Commission chairs should also give reports to liaison committees.

Sukekatsu Ushioda raised concern at the current lack of clarity on the role of liaison committees other than that of nominating members immediately before the GA.

7.2 **Commission Structure:**

By late meeting this year, associate members should have been identified for appointment at the meeting.

John Saunders asked if it was possible for the GA to add a country under a given commission, when the country had a prior track record in a specific field. This is apparently the situation in C5 (Low Temperature) where Egypt was added by the GA.

Peter Melville pointed out that a clear consultative mechanism exists where discussions are first held with commission chairs to ensure that suggested ideas are first agreed upon by chairs before they are implemented.

Alan Astbury informed the meeting that the addition of Egypt, which increased membership in commission C5 from 13 to 14, was first discussed and agreed upon in the presence of the previous C5 commission chair who also was in agreement.

7.3. **Associate Members**

Currently the associate members have no vote, and neither do they get travel grants. Special consideration should be given to offering travel grants to associate members.

Cecilia Jarlskog pointed out that the European Physical Society has also introduced the concept of associate membership which has proved most successful as it is also used as a way to leverage funding.

Most IUPAP commissions have 2 – 4 associate members, often selected to achieve geographical balance.

7.4. **Working Groups:**

Alan Astbury reported that working groups have over the years proved very successful, for undertaking specific work over a finite period of time. They are reviewed at the GA and new ones formed and some current ones discontinued, such as the working group on energy.

The Nanoscience working group was formed out of concern that Nanoscience was falling between gaps between commissions.

The International Committee on Future of Accelerators (ICFA) is an old working group which has to continue.

The Working Group on Communications in Physics is one of the most important working groups. It also deals with issues of open access to papers and opening communication access to developing countries.

Working groups should link with commissions and should not issue on behalf of IUPAP statements that have not been approved by Council or, if urgent, by the president.

8 **Minutes of the General Assembly held in Tsukuba, Japan:**

Meeting noted the minutes of the last General Assembly, in particular the statement on the universality of science.

9 **Review of resolutions approved at the General Assembly:**

9.1 The dues remain unchanged

9.2 The size of Commissions is increased to 14

9.3 Active learning and hands-on Physics Education: Importance of active learning through experiments in physics should be stressed. This message should also be communicated at ministerial level to education departments in developing countries.

9.4 Endorsement of SESAME: The SESAME (Synchrotron-light for Experimental Science and Applications in the Middle East) project was endorsed. This is a third generation light source under construction in Jordan which uses the booster and injector from Germany.

9.5 Redefinition of SI units: Meeting took note of the debate on the re-definitions of SI units, in particular the proposal on redefining the kg in terms of basic physical constants. The re-definition should take effect only when there is general experimental agreement.

Judy Franz joined meeting by conference telephone:

- Sukekatsu Ushioda welcomed Judy Franz to the meeting.
- Robert Kirby-Harris asked Judy Franz to expand on active learning and physics education resolution: Judy re-iterated commitments made at the GA in Japan and emphasized the need to involve Physical Societies.
- Alan Astbury asked Judy Franz about offering category B membership to a country at half share (for three years): Judy Franz replied that this was meant to be an incentive which should encourage a country to take full membership. The incentive is also extended to cover travel grants for young scientists.
- Following up on the workshop held in Ghana, ICSU should be informed of the existing IUPAP members in the region.

- Sukekatsu Ushioda has contacts with the president of the Academy of Science in Malaysia, Kuala Lumpur who has expressed interest for Malaysia to join IUPAP.

10 Review of resolutions approved at the General Assembly (continued)

- 10.1 **Statement of the Universality of Science**: Scientists, from certain countries continue to face problems in getting Visas to attend conferences, in particular those held in the US. A statement should be made about the importance of assisting conference delegates with visas. Local organizing committees are often the ones who receive first hand information from those struggling to secure visas.
- 10.2 **Resolution from the Conference on Women in Physics**: Judy Franz reported that most resolutions at the Conference on Women in Physics were aimed at the working groups. Information will be circulated to conference organizers to communicate all resolutions adopted at the Conference on Women in Physics. One of the past resolutions was sent to the Physical Societies. Judy felt that some of the resolutions could not be sent to Physical Societies as they would be irrelevant. IUPAP working group on Women in Physics is charged with implementation of a Resolution on the organization of 4th International Conference in 2011. Other Resolutions are focussed on career opportunities at workplaces, encouraging conferences to provide outreach to women, ensuring active participation and representation in liaison committees which could help establish additional national working groups for Women in Physics. Robert Kirby-Harris to send the relevant resolutions to all relevant bodies.
- 10.3 **UNESCO Memorandum of Agreement**: Signatures should be appended on the Memorandum of co-operation between IUPAP and the Division of Basic and Engineering Sciences of UNESCO's sector of Natural Sciences. IUPAP should device ways and means of using the memorandum to its advantage. IUPAP could through the memorandum push for an increase in women in science as well as enhance its membership by recruiting from developing countries where UNESCO is active. Judy Franz emphasised that UNESCO was keen to have the memorandum signed.

Activities of Working Groups: Alan Astbury asked how often are working groups required to give reports on their activities. According to Judy the reports were not given every year. It was however necessary to do regular review of working groups activities to assess if they were still viable. At times it is necessary to do a thorough review to establish if new working groups are needed and if some old ones should be discontinued. The meeting recommended that working groups should always be included as a standing item on the agenda

11 New Developments for 2009 – 2011

11.1 Presidents overview

Covered under 3 above

11.2 Discussions on:

Consideration of new members: As part of the Developing Nations Initiative, a total of 11 new members have been added since the 2005 General Assembly in Cape Town. Greece and Romania joined as full members under Category A. Algeria, Costa Rica, Columbia and Singapore are under Category B, while Cameroon, Ethiopia, Mongolia, Peru and Philippines are under Category C. For financial reasons, the number of countries in Category C is to be restricted to five at any given time.

Visiting Scientist Programme: This is a newly proposed programme through which a scientist could be funded to visit a developing country to give talks and establish formal contacts. This could serve as a first step to transferring expert skills through local short-term teaching and training. IUPAP could contribute by paying for a flight ticket, and local expenses could be covered by the host through Bilateral National Agreements funding programmes in countries where such programmes exist.

People involved in the programme should choose the visiting scientist. For the programme to be useful, the length of the visit should be no less than two weeks.

General Considerations of other developments:

Judy Franz indicated that a period of three years passes very quickly, and people should make use of conference calls to get more activities going.

Klaus von Klitzing asked about the availability of material to hand out to people, explaining the benefits of joining IUPAP. Judy Franz has prepared a power-point presentation titled "Why Join IUPAP" a copy of which Sukekatsu Ushioda will forward to Williamina Lazaro to circulate.

Cecilia Jarlskog wanted to know if it was possible to recruit for membership bodies such as the ICTP which are not affiliated to any society. Such bodies could pay one share. They are not a country but they do enjoy the status of an international organization. Potentially CERN could also be such a member. An institutional membership category could be considered. A concern was raised that this could lead to double representation of European countries on IUPAP. Alan Astbury said that the issue of institutional membership is something the C&CC and Assembly should keep applying their minds on. It is an issue which needs to be collectively thought about and tabled for consideration at the Late Meeting this year.

Commissions should be given space on the IUPAP website where they could submit materials. This should be effected on the website as soon as possible.

Proceedings of IUPAP-sponsored conferences should be available through a link on the IUPAP website.

Commission chairs should send a short report (paragraph or two) summarising what they presented to ensure that important points are correctly captured in the minutes.

Charter of International Committee on Lasers: Padma Kant Shukla asked if it was possible to get a new version of the charter of the international committee on lasers. Judy indicated that the copy of the charter was available and she will have it sent out.

12 Brief Reports from 9 Commissions including plans for meetings and conferences:

C2 SUNAMCO:

Recommendation of IUPAP to the Consultative Committee for Units (CCU). Following up on the IUPAP Resolution on Redefinitions of SI Units, a submission will be made to the CCU putting forward the recommendation of IUPAP. With regard to the presentation made to the IUPAP Assembly in October, 2008, the discrepancy between the Watt Balance and Silicon Crystal determinations of the Planck constant mentioned there, which is relevant to the new mass definition, may have been resolved as a calibration error in the silicon isotopic composition measurement. This should improve the prospects of the redefinitions being implemented in the near future.

Commission C2 Website. The C2 web site will no longer be supported at its present location and a new host needs to be found. It is suggested that IOP could provide space on the IUPAP website for pages to be maintained directly by the individual Commissions.

Red Book. An update of the Red Book of nomenclature in physics published by IUPAP is being considered by C2. This book has been widely distributed since its latest revision in 1987. It includes recommended values of fundamental constants that are now out of date. A revision will be of particular importance when the redefinitions of SI Units are implemented.

Conference recommendations.

Conference on Precision Electromagnetic Measurements (CPEM 2010). C2 expects to continue to recommend support of this series. The next conference is to be held June 13 - 18, 2010, in Daejeon, Korea.

Conference on Exotic Nuclei and Atomic Masses. This series has also been recommended for support by C2, but the next meeting of this conference is not known at this time.

International Conference on Atomic Physics (ICAP 2010). This series has also been recommended for support by C2, and we expect to continue recommending this series. The next conference in this series is scheduled for 25-30 July 2010, at Cairns, North Queensland, Australia.

Next meeting of Commission C2 is expected to be held in conjunction with CPEM 2010, in June of 2010.

C3 Statistical Physics:

A meeting attended by 1200 participants was organised in Italy. Two medals were awarded, one for Women in Physics, the other in human rights. The next big event to be organized is the StatPhys 24 conference to be held in Australia in 2010. Satellite meetings are being organized to ensure success of the StatPhys 24 conference. Roughly 10% of the work presented at the StatPhys conference is based on experimental work.

C4 Cosmic Rays: No report presented as the commission chair, Suresh Tonwar could not secure a visa to attend the meeting.

C5 Low Temperature Physics:

Final meeting held on August 9, 2008 in Amsterdam. Matters discussed included the IUPAP Young Scientist Prize in Low Temperature Physics, the London Prize and Simon Prize. Four conferences were sponsored by the commission. A Type A conference: the 25th International Conference on Low Temperature Physics (LT25) held in August 6-13, 2008 in Amsterdam where over 1400 participants attended from nearly 50 countries, two type B conferences: the International Symposium on Quantum Fluids QFS 2007 held in Kazan, Russia on August 1-5, 2007 attended by 206 participants from 15 countries and QFS 2006 held in Kyoto, Japan, attended by 255 participants from 18 countries. A type C conference, the 7th Conference on Cryocrystals and Quantum Crystals held in Wroclaw, Poland in July 31-August 5, 2008. First IUPAP Young Scientist prizes in low temperature physics awarded to three recipients at LT25 conference in August 2008. The recipients were Dr Dai Aoki from CEA-Grenoble, France, Dr Kostya Novoselov from University of Manchester, UK, and Dr Viktor Tsepelin from Lancaster University, UK.

C6 Biological Physics:

The 2007 BioPhysics conference was a success, with a total of 12 women attending as invited speakers and outstanding papers presented by mostly young scientists. Number of participants was comparable with previous conferences. Next BioPhysics Conference to be held in San Diego. The commission has decided to initiate a regional programme on Educational Capacity building to enable research students to access a network of research facilities at different regions. The initiative is already well underway in Latin America but it should be broadened to other regions. Although this is currently a Biophysics focussed programme, it could be extended to other specialisms.

C8 Semiconductors:

Main Conferences : 29th International Conference on the Physics of Semiconductors (ICPS) held in Rio de Janeiro in July 2008. Venues already secured for the 30th ICPS scheduled for July 2010. The 31st ICPS conferences in 2012 will be held either in Zurich or Warsaw. The ICPS 2008 IUPAP young scientist prize in semiconductor physics was given to L. Vandersypen of Delft.

It was suggested that consideration should be given to the possibility of increasing the prize money of 2000€ if only one winner is selected every 2 years, and the selection of the winner during the ICPS conference as a result of presentations of up to 6 nominees in a special session at the beginning of the conference. However it was agreed that this was not a feasible option as it conflicted with principle of giving annual prizes of a standard amount.

Approval is sought for the following selection procedure:

Four to six finalists to be selected by the prize committee.

Finalists to be notified by email and invited to participate in the 2008 ICPS.

Finalists present their work to prize committee and general public in the first half of ICPS conference.

Winners announced by the chair of prize committee at the closing session of the conference.

The commission recommends the funding of other conferences in the following prioritized order:

1st Choice: EP2DS/MSS (Int. Conf. On Electronic Properties of 2D Systems and In. Con. On Modulated Semiconductor. Structures, Japan 2009).

2nd Choice: Int. Conf. On II-VI Semiconductors (incl. ZnO), Russia, 2009.

3rd Choice: Int. Conf. On Defects in Semiconductors

The next meeting of the C8 Commission will be held in July 2009 at the EP2DS/MSS conference in Japan.

C9 Magnetism:

No report presented as commission chair Sadamichi Maekawa was unable to attend the meeting.

C10 Structure and Dynamics of Condensed Matter:

Commission 10 is one of the most difficult of IUPAP commission to organise largely due to its broadness. The field of Condensed Matter Structural Dynamics covers a wide range of topics from energy to nano-science, including information physics. The main focus of the commission is on major facilities world-wide. In its membership recruitment drive, the commission often asks the following questions: What major facilities are there in the country and what are such facilities used for? In what way could such major facilities be used to tackle energy issues? The commission is currently gearing up for the award of a top scientist prize.

Following concerns by the commission chair after seeing a list of commissioners he was not familiar with, a document has been developed with details of all commission members, with some photos included.

There was concern that the history of the commission as it appeared on the website was very disjointed, with most people failing to serve because they have been promoted to other responsibilities.

Sukekatsu Ushioda highlighted the need for the C+CC meeting to think collectively about how to tackle the fundamental problem of the diverse range of science faced by C10. Samuel Bader, the commission chair, pointed out he was not overwhelmed by the diversity of C10 as it is simply a reflection of the diversity of the field of condensed matter physics which historically had rarely spoken with one voice. However, the commission chair also felt that C10 should be more focussed. In the meantime a close eye should be kept on C10.

Conferences: A type A conference on Materials and Mechanisms of Superconductivity is scheduled for August 2010 in Tokyo, Japan.

C11 Particles and Fields:

Commission held last annual meeting in August, 2008 at the International Conference on High Energy Physics (ICHEP08) in Philadelphia.

Assessment of activities and achievements in 2008:

Particle Physics: The Tevatron collider at Fermilab, USA achieved record luminosity, enhancing sensitivity levels of the currently running CDF and D0 experiments to the production of the hypothetical Higgs Boson predicted in the Standard Model.

The Electron-Positron Colliders in KEK, Japan, and SLAC, USA have been used successfully to study the decay properties of hadrons containing the heavy b-quark in detail. Both colliders halted their operations in 2008, with the facility at KEK embarking on a multi-year upgrade programme.

Operations were halted at the HERA electron-proton collider at DESY in Hamburg in 2007, with experimental activities left to continue only in the form of mining of the database. Analysed data thus far had continued to the understanding of Quantumchromodynamics as the theory of strong interactions.

Construction of the Large Hadron Collider (LHC) accelerator and experimental set-up officially completed at CERN. First single operation of the LHC on September 10, 2008 was a success, with stable beams of good lifetimes successfully circulated in the 27 km ring several times. The LHC had to be shut down following a failure of a superconductive connection between two magnets which caused a helium leak. LHC expected to increase the accessible centre-of-mass energy by a factor of seven, making it possible to probe in detail the TeV energy range where several theoretical models predict new types of elementary particles.

C11 sponsored Conferences: Commission sponsored the following conferences:

- 34th International Conference on High Energy Physics held July 30 – August 5, 2008 at the University of Pennsylvania in Philadelphia. Next ICHEP conferences planned for 2010 in Paris, France, and 2012 in Melbourne, Australia.
- The International Neutrino and Astrophysics conference series (Neutrino 2008), sponsored jointly with C4 and C12, held on May 25 – 31, 2008 in Christchurch, New Zealand. Highlights of conference included new results from several experiments such as Borexino, SNO, MINOS and ICECUBE.
- Commission 11 has recognized the fundamental role of instrumentation in advancing the field of experimental particle physics, and subsequently plans to sponsor the first in a series of conferences on instrumentation: The first Technology and Instrumentation in Particle Physics (TIPP09) will be held on March 12 – 17, 2009 in Tsukuba, Japan. The TIPP conference will be held once every two years, focussing on instrumentation and technologies developed for particle physics experiments.

The 24th International Symposium on Lepton-Photon Interactions (LP09) will be held in Hamburg on August 17 – 22, 2009. The next Lepton-Photon conference is to be hosted by India in 2011.

The first International Particle Accelerator Conference will be held on May 23 – 28, 2010 in Kyoto, Japan. The IPAC will be the first in a new series of annual international accelerator conferences and will replace the regional accelerator conferences which used to be held mainly in Europe, Asia and the

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

A working group has been initiated 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 list of publication and impact factors of papers with few authors does not clearly address fields of science where large international collaborators are required to achieve significant scientific progress in the basic understanding of nature. The working group proposed some measures to enhance the visibility of individual achievements in large collaborations. Report of the working group is available on C11 web page.

Young Scientists Prize

The first Young Scientist Prizes in Particle Physics were awarded to Yasaman Farzan from Tehran for her work on Theoretical Particle Physics and to Kai-Feng Chen of Taipei for his achievements in experimental Particle Physics. The two prizes were awarded at the ICHEP08 summer conference in Philadelphia. Recipients presented their recent work at the plenary session of the conference.

Links with International Committee on Future Accelerators (ICFA), The C11 chair is an ex-officio member of ICFA and regularly attends ICFA meetings. New members of ICFA are confirmed by C11, and ICFA chair gives a report to annual C11 meetings.

C12 Nuclear Physics:

The annual meeting of commission C12 will be held in Bonn, Germany, on Monday, August 31 during the IUPAP sponsored 19th International Conference on Few Body Problems in Physics. The meeting will follow the meeting of IUPAP Working Group 9 on International Cooperation in Nuclear Physics on Sunday, August 30 at the same place. The members of WG 9 are welcome as observers to the meeting of C12 and the members of C12 are welcome as observers to the meeting of WG 9.

Plans have been made to publish an announcement in February 2009 with a call for nominations for the IUPAP young scientist prize in the field of nuclear physics. The plan is that three prizes will be awarded at the IUPAP sponsored International Conference on Nuclear Physics in Vancouver, Canada, July 4-9, 2010. An open issue is whether there it will be possible for IUPAP to pay for publication of the announcement in the appropriate international journals eg. Nuclear Physics News.

Meeting adjourned for the evening and resumed on Saturday 7 February at 09:00

13 Review of business discussed on day one:

Business discussed on day one was briefly reviewed.

14 Commissions Reports Continued:

C13 Physics Development:

Seven new members have been recruited. A total of three meetings held in the last two years, last meeting held at the ICTP. Next meeting also to be held at the ICTP in September 2009. The Commission deals with diverse topics from different fields focussing on development issues in different regions. Efforts currently underway to get a representative in each region. Currently there are members from China for the Asian region, a contact in Tunisia for the Arab region, and a representative from sub-Saharan Africa. Discussions currently underway with C20 to arrange a computational school in South Africa. This could serve as a model collaboration amongst the commissions. C13 also has close interaction with AC4.

Three international conferences in developing countries have received approval for IUPAP support following recommendation of C13. One conference was held in Dakar, Senegal in January, and the other to be held in Lima Peru in March. Third conference scheduled for Dakar, Senegal in November 2009.

C14 Physics Education:

Last C14 meeting held in July 2008 in Connecticut, US. Commission recommended three conferences for funding, one for each category A-C. The ICAP conference, scheduled for 2010 also endorsed.

IUPAP prize was awarded to an American in Chicago. Issues of selection of candidate still have to be addressed. Currently the selection process is still done the traditional way.

Commission still faces logistical problems of communicating with members of the group.

C15 Atomic, Molecular, and Optical Physics:

In line with its tradition Commission C15 meets at the two big International Conferences which are held every two years. In even years it is the International Conference of Atomic Physics (ICAP) and in odd years it is the International Conference of the Physics of Electronic and Photonic Collisions (ICPEAC).

The last ICAP was held at Storrs, Conn, USA in July 2008 where the change of the commission members was discussed. This was accepted in the Tsukuba meeting in October 2008. In order to have a smooth transfer from the old Commission Chair (Joachim Burgdörfer) to the new (Burkhard Fricke) we have met in Vienna for 2 days in November 2008 and discussed common matters.

The newly constituted commission discussed the participation C15 members in other Commissions. AC1 proposed that Angela Guzman become an Associate Member of Commission C15. The matter will finally be discussed and decided in the IUPAP Council and Commission Chairs meeting in the late 2009

The C15 IUPAP Young Scientist Prize was awarded for the second time at the meeting in Storrs. The recipient was Cheng Chin from the University of Chicago.

Commission endorsed the 2009 ICPEAC Conference which will be held in Kalamazoo, Mich., USA in July 22-28, 2009. An application for the Quantum Optics VII meeting in Cracow was declined. The High-Resolution Molecular Spectroscopy 21 in Castellamare, Italy from Aug.31 to Sept. 4, 2009 was endorsed with a lower priority.

C16 Plasma Physics:

The activities of C16 are displayed on the website which is hosted in India at no charge. The commission focuses on high temperature fusion plasma. There are advanced approaches in the US at Texas to combine fusion with fission. Plasma acceleration of protons has also found applications in oncology, which makes well defined energy-spread a most important parameter for therapy.

IUPAP has been generous in funding conferences recommended by C16. A type A conference on Phenomenon of Ionisation of Gases (ICPG) was held last year in Japan and attended by 600 participants. A type B International Conference on Physics of Plasma was also held last year with IUPAP support. The next ICPG conferences are scheduled for 2 – 16 July 2009, and for 2010 in Chile. The 2011 ICPG is likely to be held in India.

A young scientist award was given to a French Physicist for his work on Low Temperature Plasmas. The selection committee for the award will now be formally constituted by the chair and five members. Finalists will also do a 30 minute presentation.

C17 Quantum Electronics:

Commission has not been active in the last few years, having remained trapped for some time in a paradoxical position of operating in a research area rich in conferences but without a flagship conference which it sponsors on regular basis. Fundamental challenge of the commission chair is to establish a link with national/international conference. Commission has been reluctant to develop a new conference since the area is already overcrowded with conferences. Some effort made to develop a young scientist award. However, the conference organizing committees and programme managers tend to be quite independent and do not feel obliged to invite young scientists in accordance with the IUPAP C17 nomination rules.

The two options available for C17 to escape the paradox is either to establish strong links with a conference, such as the biennial IOP-organized Quantum Electronics (IQEC) and Photonics, or to institute a new conference in a niche area such as “Green” photonics.

C18 Mathematical Physics:

Mathematical Physics conference planned to take place every 3 years, with between 700 and 600 people expected to attend. There are generally no experimentalists in Mathematical Physics conferences. Commission often recommends support only for big conferences. Satellite conferences are not supported unless they are big enough to be considered as conferences on their own right.

C19 Astrophysics:

The C19 commission has been working fairly well in the last few years. Commission endorsed the following conferences in the last 2 years:

Waves and Oscillations in the Solar Atmosphere: Heating and Magneto-Seismology, September 21, 2007, Porlamar, Isla de Margarita, Venezuela.

24th Texas Symposium on Relativistic Astrophysics, Vancouver, December 8-12, 2008.

C19 has since the beginning of 2009 secured significant representation on the International Organizing Committee of the Texas Symposium in Relativistic Astrophysics, with 4 commission members serving in the committee.

C19 Young Physicist Prize: Commission has given the 2008 young physicist prize to Prof. Eiichiro Komatsu of the University of Texas, Austin, for his work on the interpretation of cosmic microwave background data from COBE and more recently from WMAP. Excellent candidates were presented, with the commission also awarding an Honourable mention to two additional outstanding nominees, Maria Volonteri and Sarah Gallagher. Commission expects to present third prize by end of 2010.

International Year of Astronomy: The 2009 International Year of Astronomy (IYA2009) is a global effort initiated by the International Astronomical Union and UNESCO to help citizens of the world to rediscover their place in the Universe through day and night-time sky, and thereby engage in a personal sense of wonder and discovery. A number of C19 members are involved in their own countries. The main goals of IYA2009 are to increase scientific awareness, promote access to knowledge, empower astronomical communities in developing countries, support and improve science education, facilitate new networks, improve gender balance representation of scientists at all levels and promote involvement by under-represented minorities in scientific and engineering careers, and to facilitate preservation and protection of the world's cultural heritage of dark skies.

C20 Computational Physics:

The principal activities of C20 are the annual endorsement of international conferences and the awarding of a Young Scientist Prize. Last C20 meeting was held at Ouro Preto in Brazil from on August 5-8, 2008. Meeting organized by Prof Joao Antonio Plascak of the Universidade Federal de Minas Gerais. The 2009 meeting will be held in Kaohsiung on December 16-19 and will be organized by Prof. James J.Y. Hsu if the National Cheng Kung University. The 2010 meeting will be held in Norway and will be organized by Prof. Alex Hansen of the Norwegian University of Science and Technology.

C20 currently holding discussions with C13 on the possibility of co-sponsoring a computational school in South Africa.

The 2008 winner of the C20 Young Scientist Prize is Prof. Naoki Yoshida of Nagoya University, Japan for his work on numerical cosmology. He gave a presentation at the 2008 meeting. For the 2008 prize the commission made more extensive use of various physical societies for announcing the call for nominations than it did in 2007. As a result three times the 2007 number of nominations were received, with the quality of nominees being more uniform. Commission is currently calling for 2009 nominations with a March 1 deadline.

AC1 International Commission for Optics:

The Commission held its annual Bureau (Commission) meeting on the occasion of the ICO triennial Congress ICO-21 in Sydney, Australia, 7-10 July 2008. General Assembly elected a new Bureau for 2008-2011. Maria L. Calvo (Madrid, Spain) is the new President.

The 2009 ICO Topical Meeting on Emerging Trends & Novel Materials in Photonics will be organized on 7-9 October 2009 in Delphi, Greece, including the Bureau meeting. ICO/ICTP Winter College 2008 in Trieste focused on Micro- and Nano-Photonics for Life Sciences.

During 2008 the ICO participated in nine other international conferences. The 10th ETOP (Education and Training in Optics and Photonics) will be arranged 5-7 July 2009 in St. Asaph, Wales, with K. Alan Shore as Chair. The ICO has a Travelling Lecturer Programme, and it gives out annually three awards – ICO Prize, Galileo Galilei Awards, and ICO/ICTP Gallieno Denardo Award.

The ICO will also introduce the IUPAP Young Scientist Prize in Optics. Volume 6 of the ICO Book, Advances in Information Optics and Photonics (SPIE Press) was published. The ICO publishes a Newsletter, see ICO website www.ico-optics.org.

AC2 International Commission on General Relativity and Gravitation :

The AC2 has instituted two new thesis prizes to be awarded at successive triennial conferences. One, for the best thesis in mathematical or numerical relativity, is to be named in honour of the past president, Prof. Jürgen Ehler, and is sponsored by Springer. The other award is for the best thesis in the broad area of quantum gravity, named after Profs. Peter Bergmann (past president) and John Wheeler. Negotiations for sponsorships are at an advanced stage.

Next AC2 meeting will be held at the GR19 conference in Mexico in July 2009. Members had won several prestigious prizes. The Society's journal is thriving: a special number on dark energy was a particular success.

There have been communication problems with the submission of request for the funding of the Amaldi conference. IUPAP computer system seems to have failed to capture the submitted application. Since this was the responsibility of previous admin, council is requested to give special consideration to fund the Amaldi conference

AC3 International Commission for Acoustics:

The ICA board elected at the ICA General Assembly in 2007 continues with the executive comprising Samir Gerges as President, Sonoko Kuwano as Vice President, Hugo Fastl as the Treasurer and Marion Burgess as Secretary General. The 2008 board meeting was well attended and the day long meeting allowed for good discussion on many matters important to ICA. In particular there was consideration of the governance and options for changes to the structure of the board. The Board will continue to work on this for voting by the ICA membership at the next General Assembly in Sydney in 2010. Membership of the ICA has not been increasing while it is clear that the interest in acoustics is expanding. Board is seeking suggestions for encouraging more members for ICA.

The major activity for the ICA is the congress held every 3 years. In 2010 this will be held in Sydney Australia. The ICA has provided support to the Wave and Quantum Acoustics conference in 2008, held at Wisla, Poland, The Acousto-Optics Conference, held in Sopot, Poland, and Acoustics Communication by Animals, held in Oregon, USA, 2008. The 2009 list of supported conferences include ICU 2009-Ultrasonics and the 34th International Conference on Acoustic High Tatras.

AC4 International Commission on Medical Physics:

Two documents have been prepared on the standing of Medical Physicists by William Hendee and published in most international medical physics journals: Bill of Rights and a Statement on Plagiarism.

The Middle East Federation of Organisations for Medical Physics (MEFOMP) was initiated at the ICMP 2008 in Dubai.

The Federation of African Medical Physics Organisations (FAMPO) took its first steps and will include all African countries.

Through its Professional Relations Committee (PRC) the IOMP started an initiative to develop a crediting system for qualification of medical physicists worldwide.

Commission endorsed for IUPAP funding the 17th International Congress on Medical Physics of IOMP within the 11th Congress of the IUPESM, to be held on September 7-12, 2009 in Munich, Germany.

Young scientist prize awarded to Habib Saidi from Jordan. Next prize to be awarded at the World Congress in Munich.

Next meeting of AC-4 is planned to be held at WC-2009 in Munich.

15 Dates and venues of future C&CC meetings and General Assembly

Mid-October 2009 and October 2010 ideal for next C&CC meetings
Actual dates and venues to be decided by Council

16 **Prizes, Awards and Medals:**

Alan Astbury mentioned that the prize and award medals project was launched at the Cape Town GA, with a rule that one should not be allowed to accumulate prizes. This allows young people to be present at IUPAP conferences.

The IUPAP contact person is Williamina Lazaro, who should be given citation of 100 words. She should be told who the winner is and should be informed what the recipient needs to see engraved on the medal, together with the address where the medal should be sent.

Most prizes have thus far gone to scientists from developed countries, with C17 conspicuously missing from the medal awards. Commissions are encouraged to try to make awards to people from developing countries, with a particular focus on women. The overall emphasis of the process must be the unconditional selection of the best scientists.

Marcia Barbosa could contact Women in Physics to encourage them to submit nominations. People from developing countries also have to be encouraged to nominate.

Kennedy Reed expressed concern on the distribution of members from developing countries on the commissions, and emphasized the importance of having representatives from developing countries on every commission. He further highlighted a concern that the best scientists from developing countries may be placed at a competitive disadvantage in that they often lack access to material infrastructure that lead people to win awards.

Samuel Bader suggested that the issue of leaving selection process to the commission may have to be revisited, or else clear guidance will have to be provided. He pointed out that each commission seems to have a different culture. Some commissions do have money for travel support while others do not. There is no uniform mechanism to support the young scientist to attend the conference.

Rules only say 8 years after obtaining a PhD. The use of adjectives such as young or old could raise potential legal issues, especially in Europe. Current rules are however considered to be sufficient and should prevail until reviewed.

17 **Encouraging International Physics Students and Groups**

Lindau Nobel Laureate Meetings: All nominations should be submitted to the C15 chair, Burkhard Fricke who is a member of the committee co-ordinating the Lindau meetings. The last meeting was well attended.

Alan Astbury wanted to know if more emphasis could be placed on disciplines. The emphasis was on Physics in 2008 and is in Chemistry in 2009. The next interdisciplinary meeting (dedicated to chemistry, physics, and medicine/physiology) will be held in 2010

Nominations of outstanding students should be submitted to C14 chair, Robert Lambourne. Travel costs are paid.

Any other suggestions: The book titled Physics Now should be sent to all commission chairs through Robert Lambourne. The chairs should be requested to update the contributions pertaining to their respective commissions

18 **Any Other Business**

No new business was discussed. Sukekatsu Ushioda thanked everyone for attending the C&CC meeting: *Meeting adjourned*