

## October 6-7, 2000 Beijing, China

### Participants:

**Members of the Council:** B. Richter, Y. Petroff, R. Turlay, J. Franz, J. Nilsson, A. Ardeberg, R. Barber, K. Binder, P. Kalmus, J. Moran-Lopez, G. Yang, H. Yasuoka, E. Zingu

**Commission Chairs:** C3 K. Binder, C4 T. Gaisser, C5 H. Godfrin, C6 F. Parak, C8 E. Molinari (Secretary), C9 H. Yasuoka, C11 P. Kalmus, C12 B. Frois, C13 E. Zingu C14 J. Sahm, C15 I. Martinson, C16 F. Sluijter, C17 R. Lang, C18 D. Rowe, C19 A. Ardeberg, C20 T. Takada (Vice-Chair)

**Representatives from Affiliated Commissions:** AC1 P. Chavel (Secretary General), AC2 M. MacCallum (Secretary), AC3 L. Crum (President)

**Guests:** Chen J. (President of the Chinese Physical Society and President of the National Science Foundation of China)

**Absentees:** B. Petley, C. Murray

Richter called the meeting to order and introduced Professor Chen Jia'er, who welcomed the group to China on behalf of the Chinese Academy of Science and Technology and the Chinese Physical Society. He mentioned that it was the second time during its history that the IUPAP Council had met in China, and thanked IUPAP for the many conferences held in China that it had supported. Professor Chen wished the group a very successful meeting.

Richter asked for any corrections to the minutes. None were suggested and the minutes were approved.

ICSU: Richter then began a discussion of matters related to ICSU, which has been renamed the International Council for Science. He said that ICSU has had considerable influence because it has a large number of both national members and those from the international unions. Unfortunately it has been limited in what it could do because of its very small staff. In part because of this the major National Academies were not satisfied with ICSU's activity and decided to form a new group, the International Council of Academies, the ICA. This has caused ICSU to rethink its role. It has established a new committee, the Committee for Scientific Planning and Review, CSPR, of which Richter is a member. This Committee has suggested that ICSU might contribute more successfully to global problems in their early stages, before they have been officially recognized by governments. At an early stage, volunteer efforts can be very valuable. Once governments begin to tackle problems, ICSU's resources are too limited to have a major impact.

Richter then mentioned the upcoming meeting of the International Unions that ICSU is sponsoring. He said that education would be a topic of discussion and the Committee on Capacity Building would hold a meeting during the same time period, which would bring together education representatives of the Unions. Sahm mentioned that IUPAP C14 did not involved itself with elementary education except through its efforts on improving teacher preparation. He said that Paul Black would represent C14 at the ICSU meeting. Richter asked for other topics for the meeting of International Unions. One concern was that ICSU was dominated by a large number of small biological unions. Another concern was that ICSU has too many committees that have existed for a long time and never been reviewed. Now a sunset clause for committees has been instituted. After some discussion, it was decided to return to this matter later.

Turlay mentioned that IUPAP often gets requests from ICSU (and occasionally through ICSU from UNESCO) for volunteers or information. He was concerned that Commission Chairs did not respond in a timely way. Richter urged Commission Chairs to respond quickly to requests for information as we want to make sure that the views of working scientists are included in important international efforts. It was decided that if Commissions Chairs responded directly to ICSU on such requests they should let Franz and/or Turlay know. This would ensure that there would be proper follow up. One request that came from ICSU/UNESCO was for suggestions for the United Nations University Council. This request had mistakenly gone to Barber and thus gotten delayed. Nilsson explained that the United Nations operates a number of universities with the main campus being in Tokyo. Anna

Marie Cetto, a member of C13, is on the University Council until 2001, and it will be important that another physicist replace her. Suggestions for names would still be useful. Turlay will contact Cetto to see what is involved in serving on the University Council and what special skills are useful. Turlay mentioned that IUPAP had received a request for input from ICSU's Committee on Responsibility and Ethics in Science (SCRES). This committee is attempting to formulate a set of international ethical guidelines regulating research. Members of the Council and Commission Chairs were urged to send any national ethics statements that exist either to Turlay or directly to Kathinka Evers at [evers@online.no](mailto:evers@online.no). Franz and Turlay will send a message to IUPAP Liaison Committees and physical societies asking them to forward their ethics statements. Sluijter noted that the SCRES's report, prepared for the 1999 World Science Conference, contains some unfortunate statements, such as "---- threats to our environment and obstacles for a peaceful co-existence between different peoples and nations, are to a large extent directly or indirectly the results of the scientific enterprise." Such statements were one of the reasons that the World Science Conference was widely criticized.

Reports from Commissions: The representatives of the Commissions then each gave brief reports. The Commissions will be asked to put their reports on their web sites, so just a few points will be mentioned here. Under C2 business, it was reported that IUPAP had received a report ("On the Discovery of Elements 110-112") from the IUPAC/IUPAP Joint Working Party (JWP) appointed to establish priority of claims to the discovery of 110, 111, and 112. The question raised was whether these elements had been briefly observed or actually discovered. The JWP stated that the claim for the discovery of 110 was valid, while 111 and 112 needed further confirmation. Frois and Barber both stated that further work had been done since the report was written, and that it was desirable that the recent work be evaluated as a continuation of this effort. Richter will communicate with the JWP and tell them that IUPAP endorses their report. He will also request that the JWP make a recommendation on how a review should take place for the work done since their report was written.

Several commissions (C3 and C9) that give awards have been accustomed to putting all previous award recipients on the selection committee, with the result that the selection committees get continuously larger. This will need to be dealt with at some time by including only the most recent recipients.

Godfrin reported that C5 has made efforts to build closer ties with industry and now has a new Associate Member representing the International Institute of Refrigeration.

There was some discussion of whether the scope of C6, Biological Physics, was too narrow. Since its inception, C6 has dealt only with a limited number of topics, but the interface of biology and physics is becoming very broad and increasingly important. The question was raised as to where the other topics concerning the interface should be covered within IUPAP. Parak explained that many topics at the interface between physics and biology are the subject of conferences organized by IUPAB, the International Union of Crystallography and others. C6 was originally established to cover subjects which had not been treated sufficiently by other organizations. However, it is true that the number of topics should increase, and this effort will be evident from the program of the next conference in Kyoto.

Molinari mentioned that C8 was concerned that the overlap between basic research and industrial research was shrinking. C8 used to do a good job of bringing these two communities together and an effort will be made to reinitiate this by holding the next conference at a site that will enable some industrial physicists to attend.

One issue that was raised in C11 was the difficulty in establishing recognition when research papers have a very large list of authors. Since this seemed to be only a problem for particle physics, it was decided that IUPAP would not involve itself with this.

Frois mentioned that C12 is planning to start a committee similar to ICFA to examine the international needs for large facilities and collaboration in nuclear physics. It was agreed that such a

new group would be called a Working Group until it had undergone a review that established its continuing utility. Then it would become a standing committee of C12.

Zingu mentioned that the C13-sponsored Conferences on Development, held every two years, would not be possible without IUPAP funding. The proceedings of the most recent conference, which emphasized the link between science, industry and government, will be used to try to influence governments in developing countries to give more support for science.

During the report from C15, the issue arose as to whether IUPAP should advocate the use of electronic conference proceedings. The general thinking was that it is not yet easy to produce electronic proceedings because authors refuse to submit their work in standardized forms. Graphs are particularly difficult to handle.

The problem of support for large fusion facilities was raised by Sluijter and Frois. Funding seems to be particularly difficult to obtain even though recent major advantages are without dispute. The problems appear to be political. Since the projects are, by definition, long term, governments feel that there is no rush, so that their current budgets can be focused in other directions. Richter asked how IUPAP could help convince governments that recent scientific advances were real. Would IUPAP be believed if it issued a statement on fusion? C16 was asked to consider this, but it was agreed that a believable statement would need input from beyond the fusion community.

Rowe raised the issue of the need to improve the connections between mathematical and theoretical physics. C18 had considered and rejected the idea of a name change from Mathematical Physics to Mathematical and Theoretical Physics. One problem with this is that almost every commission already includes some theoretical physics. The problem of communication between the groups remains, however. This has not interfered with the success of the Commission's triennial conferences, which have been making greater efforts to include more popular lectures for the broad mathematical physics community and the public.

Chavel mentioned that a topical meeting sponsored by AC1 in Dakar, Senegal, had raised the international consciousness of the quality and diversity of optics research throughout Africa. He thought that the impact would include more chances for African scientists to spend sabbatical periods in foreign universities and more opportunities for graduate fellowships for African students.

#### Reports from Working Groups

ICFA (International Committee on Future Accelerators): Kalmus reported ICFA was created in 1976 primarily to promote international collaboration in the construction and exploitation of very high energy accelerators. It has 16 members and currently Hirotaka Sugawara (KEK) is chair and Roy Rubinstein (Fermilab) is secretary. It meets three times a year; one of the meetings is with the directors of the major HEP labs. It has panels on Advanced Accelerators, International Connectivity, Computer Communication, Videoconferencing, and Beam Dynamics. It interacts with other organizations such as the Global Science Forum and occasionally produces ICFA statements. ICFA has suggested a Global Accelerator Network in order to keep all the regions of the world active. Kalmus expressed concern that the problems at the National Ignition Facility are damaging the physics community.

Richter mentioned that ICFA monitors internet usage at many places around the world. It would like to expand this effort to more developing countries and needs people in these countries to help with this process.

PANAGIC (Particle and Nuclear Astrophysics and Gravitational International Committee): Gaisser reported that PANAGIC was formed in 1998 and reports to C4, C11, C12, C19, with the primary relation to C4 and a connection to AC2. Projects at the interface of these commissions are becoming large and need international coordination and communication. In addition, there is a need to build a common culture. Summer schools would be useful to accomplish this. The members of PANAGIC met three times in the last two years and are trying to write a document that describes the science. There are two subcommittees: the High Energy Neutrino Astrophysics Panel and the Gravitational Wave International Committee. Major topics include underground laboratories for the study of neutrinos, proton decay, and dark matter; nuclear astrophysics data from SNO, SuperKamiokande

and other neutrino detectors; cosmic ray physics; very high energy gamma ray astronomy; and gravity wave detection. MacCallum mentioned that the International Astronomical Union had working groups on some of the same topics and that it would be good for the groups to work together.

Gaisser mentioned that two members of PANAGIC had recently resigned (Sadoulet and Rees) and new members were needed. PANAGIC recommended Enrique Fernandez (Spain) and Karl Mannheim (Germany) These new members were approved.

Working Group on Facilities for Condensed Matter Physics: Parak reported that the working group had only considered facilities for neutron scattering so far. There will be a meeting sponsored by the working group in Japan on November 3-4. At the last meeting in Budapest, the conclusions were rather vague, and they hope to have a more definite set of conclusions and suggestions from this next meeting. One area where great improvement is possible at reasonable costs is instrumentation. This needs to be emphasized. After the committee on neutron facilities gets underway, other committees will be considered.

Working Group on Women in Physics: Franz reported that the working group had met in Washington, DC in June. Two major efforts are underway. The first is to collect basic data from as many countries as possible and the second was to plan an International Conference on Women in Physics to be held in February or March of 2002. It is hoped that there would be about 200-300 participants with teams of 3-5 physicists from all of the IUPAP countries plus additional ones. Letters to all Liaison Committees and national physical societies were sent to alert people of these plans and ask for their help. The working group would like to hold the conference in Paris. An attempt has been made to gain permission to hold the conference at UNESCO Headquarters, but so far without success. Frois volunteered his help to arrange space for the Conference in Paris. Sluijter recommended involving social scientists who study the issue of women in physics.

It will be necessary to obtain a great deal of funding. This will be sought from governments, ICTP, UNESCO, OAS, and global industrial companies. Franz asked for everyone's help in making the conference success. All Council Members and Commission Chairs are invited to attend.

Working Group on Communication in Physics: The Council and Commission Chairs had received a written report from the working group. This contained a number of recommendations including IUPAP sponsorship of two small conferences: one on linking of publications of different publishers and the other on long term availability of journals (archiving). The group agreed that both were important topics but decided that the topic of archiving was more important and should be handled first.

The topic of intellectual property rights was discussed. Here ICSU has an important role to play. It would be good to get the burdensome regulations passed by the European Union modified. Richter pointed out that all such regulations have to undergo review after three years so this effort has a chance for success.

Another issue considered in the report was the availability of publications in remote areas. ICFA can help with the monitoring of internet connection; 50 countries are currently being monitored, mostly countries with programs in high energy physics. Richter will send Franz the list of these countries for wider circulation.

It was decided that the Working Group should be asked to propose appropriate IUPAP statements in time for discussion at the Council and Commission Chairs meeting next year. These could then be taken to the General Assembly the following year. The report for the Working Group was accepted.

Business Matters:

The suggestion for Associated Members of the Commissions were reviewed and passed along to the Council for its approval.

The Inter-Union Delegates were then discussed. Very little is known of what occurs in the other Unions. Therefore it was decided that each year IUPAP would ask each Inter-Union Delegate to submit a one-page written report summarizing the key issues for the relevant Union. In addition, if an important issue were to arise, Inter-Union Delegates should notify IUPAP immediately. The

question was raised whether the Inter-Union reports would be sufficient to bring important interdisciplinary issues to IUPAP. This point will be reexamined at future meetings.

Franz then gave the financial report. In 1999 IUPAP had a small surplus mainly caused by several countries paying their dues for previous years. For 2000 a small surplus is projected but this is dependent on receiving more than \$100,000 of member dues that are still owed. In moving the reserve funds to the United States, banking and audit charges have increased, but the added interest earned is much more than enough to compensate for this loss.

Franz then presented proposed budgets for 2001 and 2002. Both of these budgets showed losses. There was considerable discussion of how to avoid this, but the only solution seems to be to ask for a dues increase at the next General Assembly. Commission chairs argued that the proposed reduction in the budget for the Commissions was much too large. It has been the custom that each Commission has \$5000-7000 to spend over a 3-year period. The budget line for Commission was set at \$30,000 to allow this to continue.

Franz then raised the concern expressed by the Secretariat that considerable money was wasted in billing members in Swiss Francs since this often required two currency exchanges: local currency to SF and then SF to US dollars. It was decided that the amount of the dues would be stated in SF but the invoice would request payment in the equivalent amount of dollars.

International Conferences: Barber presented the list of conferences that had requested IUPAP sponsorship. Each conference was discussed in turn. For the list of approved conferences and the amount of money allocated to each, see the report of the Council meeting.

Barber then discussed some proposed changes in the guidelines for IUPAP sponsorship of conferences. The first change would allow IUPAP to sponsor a small number of regional conferences in areas of developing countries. The second change would better define the roles of the Liaison Committees, the Commission, and the Council in approving conference sponsorship and encourage Commissions to do some long range planning for conferences in their areas of physics. (See the Council minutes for a fuller report on these changes.) There was some discussion of the small size of the International Conference on Biological Physics. There are so many regions of overlap between physics and biology that some thought the the conference scope was too narrow. Sahm was concerned that it may be difficult to do long range planning in some areas, particularly for smaller conferences. However, Barber pointed out that the plans could be adjusted if necessary. The guideline changes were approved.

Revised Statutes and Bylaws: Richter opened the discussion of the proposal for a new set of IUPAP Statutes and Bylaws. The following changes from Richter's draft were agreed upon.

Article I. 2. The word "standards" should be changed to "nomenclature."

Article II. 1. The first sentence was changed according to a suggestion from Rowe. It would now read: "The members of IUPAP are communities of physicist engaged in independent scientific activity each within a definite territory and -----"

Article III. The general heading of this section was changed from "Governance" to "General Assembly."

1. c. "Sets policy" was moved to section III. 2 and would become 2. a.. This change would allow the Council to establish provisional policies that would then have to be ratified by the next General Assembly. The original a, b, and c, would become b, c, and d.

2. e.. "Accept new members." was added. This would allow the Council to accept new members on a provisional basis. It was agreed that new members should be voted on at the beginning of each General Assembly, so that new members would have full rights throughout all but the earliest part of the Assembly. This will allow new members to vote on key issues and to be represented on commissions.

6. This new item will be added to define a quorum for the General Assemblies: "A quorum for the General Assembly shall be the presence of sufficient members to produce 2/3 of all votes. VI 4 This item was revised to read: "Each Chair of a Commission or Affiliated Commission or, in the -----" The

phrase was added to make it clear that chairs of affiliated commissions have voting rights at the General Assemblies.

The official meeting was then recessed. Scientific talks were presented by Petroff and Yasuoka. The meeting of the Council and Commission Chairs was reconvened on Saturday morning and began with a discussion of the new IUPAP Bylaws proposed by Richter. Section II. B. was discussed. It was agreed to keep a time limit of 9 years for the total length of service on a Commission. The phrase "(such as C2 and C14)" was dropped from item 5.

The nomination process described in Section III. 1. b. was then discussed. Richter wondered whether asking for nominations for commissioners 18 months before the General Assembly was too early. If so, it would be necessary to move the meeting of the Council and Commission Chairs from October to January or February. Two schemes were discussed.

1. Liaison committee and commission nominations are both due September 1. The meeting of C and CC to make up the slate would then be in October.

2. Commission nominations due in late summer; the Liaison Committee's by the end of year. C and CC meeting to make up the slate would be in early February. The first option was chosen but with a date of with September 15 rather than 1 to allow time for all the Commissions to meet. This would mean that the C and CC meeting would have to be somewhat later also.

Moran Lopez pointed out that the Liaison Committees should consult national physical societies and need to have time to do this. Franz thought that the Liaison Committees should do their work before the Commissions. IUPAP should call for nominations by February 1, ask for the Liaison Committee nominations by June 1 and the Commissions by September 15. Because geographic balance is a major problem, the Commissions should be asked to have alternates on their lists.

The group then discussed Section III. 1. d. on resubmitting nominations. It was agreed to change "one other delegation" to "at least one other delegation." It was also agreed that only Liaison Committees should be allowed to resubmit. The reason for this is that Commissions have direct input into the nomination slates through their Chairs.

Attracting new members: Nilsson presented some pros and cons of seeking new members for IUPAP. For countries with a well developed physics community, there are no problems. Greece was mentioned as country that should be a member of IUPAP but is not. However, when developing countries are persuaded to join before they are ready, there may be problems with collecting the dues and finding travel funds to attend the General Assemblies, and there may be a dearth of physicists who could serve effectively on Commissions. It was decided that IUPAP would actively seek new members where there is a developed physics community but be cautious about urging countries with weak physics communities to join.

Enhanced website: The proposal from the Institute of Physics in the UK for an enhanced IUPAP web site was then discussed. IOP would provide an invisible link to one of their servers where they would post the following: documents produced by organizations on policy issues in physics, a compilation of statistics on funding and other measures of physics world wide, and public announcements in support of physics made by politicians and others. IUPAP would pay IOP \$5000 toward the expense of setting up this service. Richter stated that he thought this information would be very useful. Frois was concerned that this would repeat information that was readily available elsewhere. Molinari thought that it would be quite useful to collect all of this information in one place. Richter pointed out that it is often difficult to find information about physics among more general science information posted on most web sites. Some concern was expressed about IOP charging for this work but Richter pointed out that they would be providing an IUPAP site not an IOP site. It was agreed that it would be a worthwhile experiment for the 3 years. At the end of the 3 years, the project would be reviewed to assess its value to the physics community. Richter will appoint a small committee to work with IOP on the additions to the IUPAP website.

2002 General Assembly: Franz reminded the group that the next General Assembly will be hosted by the German Physical Society (DPG) and will be held in Berlin in 2002. Sahm will act as head of the local committee for the DPG. Sahm said that it will be a great honor for the DPG to host the General

Assembly. He said that there aren't any major meetings of the DPG at that time of the year so the General Assembly will be free standing. He suggested that the Assembly take place in the second week in October since October 3 is a German holiday which would make the hotels much more expensive. It was agreed that the General Assembly would begin on October 9 and continue over a 4-day period, Wednesday to Saturday. It would be preceded by a 2-day meeting of the Council and Commission Chairs. The 4-day General Assembly would include a day for some sightseeing and a chance for the presentation of some physics topics. In addition, Petroff would hold a brief meeting of the newly elected Council at some point during this time. The first full meeting of the Council and Commission Chairs would be in January or February of 2003.

New business: The Peter Gruber Foundation of the USA has created a Cosmology Prize of \$150,000 to be awarded annually. In awarding this prize the Foundation wants to collaborate with the International Astronomical Union (IAU) and other appropriate international unions. The IAU had contacted IUPAP to see if there would be interest in joining this collaboration. It was decided that IUPAP should participate and that C19 and AC2 would act as the IUPAP liaisons for this.

The Meeting was adjourned.