

MINUTES

25th General Assembly of the International Union of Pure and Applied Physics (IUPAP), BMW Pavilion Conference Centre, Cape Town, South Africa (October 26-28, 2005)

The 25th General Assembly of IUPAP was held in Cape Town, South Africa with the South African Institute of Physics serving as local host and iThemba Labs helping with local arrangements

The President, Yves Petroff, was in the Chair for all session of the General Assembly, as well as the associated meetings of the Council and of the Council and Commission Chairs. The General Assembly was attended by 74 delegates from liaison committees and commission chairs, 16 observers from non-member national communities and regional physical societies, and 11 members of the IUPAP Council (5 of whom are also commission chairs).

Wednesday, October 26, 2005: 9:00 a.m. – First Session

1. Opening and Introduction of Guests

In his opening remarks, IUPAP President Yves Petroff welcomed the delegates to the meeting and noted that, although IUPAP was formed in 1923, this was the first time ever that a General Assembly had been held in Africa. He added that this meeting was also held in conjunction with the World Conference on Physics and Sustainable Development which was to meet the following week in Durban, South Africa. He also welcomed those who were making special presentations to the assembly.

As has been the custom at IUPAP General Assemblies, the president led a brief memorial tribute to two former members of the IUPAP Council who had died in the interval since the last General Assembly. Larkin Kerwin was a distinguished atomic and molecular physicist who served on the Council of IUPAP for three decades, as Associate Secretary-General (1963-72), Secretary-General (1972-84), and President (1987-90). René Turlay was one of the four discoverers of Charge Parity (CP) violation who served as Secretary-General 1996-2002. Following a brief biographical sketch of each, the President led a moment of silence in their memory.

2. Welcome by Minister of Science & Technology, South Africa

Mr. Mosibudi Mangena, Minister of Science and Technology for South Africa expressed a warm welcome to the delegates to the General Assembly and said that they were especially honoured to be the hosts in this International Year of Physics. This meeting coincided with the 50 th anniversary of South Africa Institute of Physics. His government is interested in what South Africa can do for Physics and what physics can do for South Africa.

He commented that, with increased stability, further progress can be made. South Africa shares problems with many other countries. There is a small number of students, an aging population of physicists, the need for new investment in research and the revitalizing of the discipline. In the case of South Africa, there are problems beginning in the schools where only 5% of the students in a given year have sufficient standing to continue physics in university.

His government is introducing a new curriculum in grades 10-12 and implementing a deliberate strategy for science teaching. Along with the new physical sciences curriculum, they are promoting women in science. For example, they have profiled female physicists in newspapers. Many of the issues raised by the Working Group on Women in Physics are being addressed and slowly they are bringing about a transformation.

South African physicists have maintained a high quality of research. There have been 4 Nobel laureates from South Africa. Limited resources have forced a high degree of ingenuity. They have taken initiatives in energy. They have exploited their geographical position and constructed the largest optical telescope in the southern hemisphere, benefitting from dark skies. A new radio telescope with a square kilometer array has been proposed. Antarctic research has been undertaken.

President Petroff expressed the thanks of IUPAP for South Africa's hospitality, for this introduction to the work done here, and for continuing collaboration with South Africa.

3. Adoption of agenda and minutes

Petroff called for any changes to be made in the agenda or amendments to the minutes. There were none and the agenda was approved.

4. Presidential address

President Petroff reviewed the changes that had taken place in IUPAP in this most recent term. IUPAP has continued to promote the relationship between it and the developing countries. A strong list of international conferences has been sponsored by IUPAP. An improved website has been developed. The International Year of Physics was promoted and new members were actively sought. The union is in good financial shape so that there will be no increase in fees for the coming three years.

After many years with no new commissions, we are now looking at adding a new affiliated commission in medical physics. The working groups have been reviewed and a new working group in nanoscience has been formed and a new one in Cooperation in Nuclear Physics, similar to ICFA, will be recommended to this Assembly. The status of all of the working groups has been reviewed by the Council and Commission Chairs and recommendations regarding them will be brought to the General Assembly.

He commented that IUPAP has been pressing the importance of basic science in ICSU, countering the view that developing countries are interested only in applied science.

The free circulation of scientists is not a dead issue. To the contrary, restrictions on visas have impacted negatively on free circulation and IUPAP has been very active in this area.

The Council and Commission Chairs have developed a proposal for the "IUPAP Young Scientist Prize" which will be presented to the General Assembly for approval.

As part of the participation in the International Year of Physics, IUPAP has been one of the principal sponsors of the World Conference on Physics and Sustainable Development in Durban.

In looking to the future, membership by developing countries is a clear goal. Communicating the function and importance of IUPAP to graduate students and young scientists is a continuing challenge. (Appendix 1: Full address Pending)

5. Financial report

Judy Franz (Secretary-General) was unable to be present. In her place, Bob Barber (Interim Associate Secretary-General) presented the financial report to the Assembly, referring to the attachments that had been made available to the delegates. The report was in US dollars because the banking was done in the USA.

The “IUPAP 2004 Operating Budget”, presented for information only, was the audited statement that had been approved by the Council at its meeting. The large unanticipated surplus had been produced by three factors: the change in billing dues from US dollars to euros, the receipt of significant back dues, and the relatively lower costs in 2004 compared to the preceding and following years. The exception was the costs associated with the production of “Physics Now” under the item of the ICPE Newsletter.

Barber stated that the operating surplus that had accrued was larger than desired. However, the “2005 Operating Budget” statement showed that the current year projected a deficit. Similarly, the “Proposed IUPAP 2006 Operating Budget” (Appendix 2) projects a deficit. It is anticipated that the accumulated deficits will bring the operating budget into line by the next General Assembly. It is therefore proposed that there be no increases in the dues for the years 2006-08. – Proposed budget, 2006:

6. Secretary General’s report on member affairs

Barber advised the meeting that Tunisia had applied for membership. The Executive Council had considered the application and recommended approval. The resolution to be considered was “that Tunisia should become a Member of IUPAP as soon as IUPAP has received the first year’s membership dues”.

It was noted that Bulgaria had not paid its membership dues for 6 years and, according to the IUPAP Statutes, ceased to be a Member.

Similarly, Chile had not paid its dues for at least 3 years and had lost its right to vote at this General Assembly.

7. Proposal for a new Affiliated Commission on Medical Physics

As the result of a joint committee of IUPAP and the International Organization for Medical Physics, the IUPAP Executive Council recommends the formation of a new Affiliated Commission on Medical Physics. Medical physicists have many areas of overlapping interest and concern with physicists in other areas, and this new affiliated commission will allow closer cooperation between the two international groups. There are today many areas in medicine where collaborations between doctors, biologists, physicists and computer scientists are necessary; physics plays an important role in these.

Azam Niroomand-Rad, president of the International Organization of Medical Physicists addressed the meeting, giving an overview of the activity in medical physics, the organization of the medical physicists, and the desirability that there be a close link with IUPAP.

Notice was given that there would be a resolution to approve this new Affiliated Commission.

The assembly adjourned for coffee break at 10:50 a.m.

8. Report on Challenges to the Free Circulation of Scientists

Vera Lüth (Chair C11) was asked to report on experience with the issue of free circulation of scientists. She pointed out that IUPAP subscribes to the statement by ICSU on the “Universality of Science”. Specifically this includes freedom of association and expression, access to data and information, freedom of communication, and freedom of movement in connection with international scientific activities, without any discrimination on the basis of such factors as citizenship, religion, political stance, ethnic origin, race, color, language, age or sex

With the end of the cold war, there was some thought that this was a solved problem. However, the new concern about security from terrorists has generated new restrictions. These have affected countries such as the USA, Japan and some European countries. At one point, problems with visas for travel to the USA were sufficiently severe that IUPAP considered restricting sponsorship for conferences in the USA. Lüth related problems that are being encountered, particularly with the USA, with respect to the procurement of visas, attendance at meetings and participation in experiments located in the USA by foreign nationals. The lack of uniformity of treatment at various embassies was documented.

However, the situation for visas in the USA has now greatly improved, but problems remain there and in other parts of the world. IUPAP has worked with the National Academy of Sciences and others to pressure the government to correct some of the most serious problems with visas. Progress has been made, but the process is still very unsatisfactory in many aspects.

This was followed by a general discussion about the problems in particular cases, along with the question of what could be done to improve the situation in general. The role that IUPAP can play depends on the information being transmitted to the conference organizers and to the secretariat. It was pointed out that this requires that there be adequate time to actually act. Relevant information is given on the web site <http://www.nationalacademies.org/visas> (Appendix 3: Full Report on Free Circulation)

10. Report of the Working Group on Energy

Energy will be one of the most important problems of this century. For this reason, the IUPAP Executive Council initiated a Working Group on Energy and asked it to prepare a report on the current situation. K. Heinloth gave a summary of the report on energy that was produced by the Working Group on Energy and is now posted on the web site at <http://www.iupap.org/wg/energy/tech.pdf> Notice was given that a resolution approving this report would be presented to the Assembly.

The meeting adjourned for lunch

Wednesday, October 26, 2005: 2:15 p.m. – Second Session

11. Report of ICFA

ICFA was created in 1976 by IUPAP to facilitate international collaboration in the construction and use of high energy accelerators. J. Dorfan, Chair of ICFA gave a brief overview of the major activities of ICFA, and reported its most recent activities. ICFA is designed to organize on an international scale. It holds summer and winter meetings and includes directors of accelerator laboratories.

In particular, he outlined the way that ICFA had been involved in promoting the successful construction of the Large Hadron Collider (LHC) at CERN and current activity in the early planning for the International Linear Collider (ILC). The latter is proposed to be a 500 GeV electron positron linear collider as a complementary instrument to the LHC. ICFA has formed the International Linear Collider Steering Committee (ILCSC) to promote the construction of the accelerator, to define the scientific roadmap, to monitor machine R&D activities and to recommend organizational appropriate structures.

The ILCSC and ICFA have unanimously endorsed the selection of Barry Barish as Director of the Global Design Effort (GDE). The GDE will report to the ILCSC until it is organized under a federation of worldwide government agencies. At that time, ICFA will step aside. Albrecht Wagner will become chair of ICFA in December, 2005.

Appendix 4: Report of ICFA – Attachment 12

Appendix 4a: ICFA Statement on the ILC – Attachment 13

12. Report on the Plans for the International Linear Collider

Barry Barish, the Director of the Global Design Effort, reviewed recent developments in particle physics and the contributions that could be expected from the LHC and the ILC. He described the early work that is currently underway and the general time lines for various aspects of the project. It would operate under the general principles of ICFA and be free and open to scientists all over the world. Cost is anticipated to be several billion dollars.

In the discussion, the difficulty of providing uniform international access was acknowledged. The host country must ensure that this is done.

13. Business from the Liaison Committees

The president called for any items of business that the liaison committees might wish to raise. There was none at this time.

14. Report of the Working Group on Nanoscience

At its last meeting, the IUPAP Executive Council initiated a Working Group on Nanoscience, a very rapidly growing area of physics. It was felt that there was no necessity to create a new commission in this area because at least six commissions are strongly involved in this field. The working group was asked to examine the interface between atomic and solid state physics in this area; the new possibilities with cold atoms (Bose-Einstein condensation, superfluidity, superconductivity, etc.) allow a new and strong interaction between the two communities.

William van Wijngaarden (Chair), reported that the Working Group had examined how IUPAP can facilitate the development of this field. The working group composed of members representing nine IUPAP commissions met in Paris and concluded that a conference limited to between 75 and 150 people would be useful to improve the synergy between researchers in the various commissions. A number of conference topics were discussed for the first such meeting and our recommendation is that IUPAP support a conference on Bionanoscience. This meeting is to take place at the Biological Research Centre in Szeged, Hungary in 2006 and has been approved by the Executive Council.

15. Report on Ethics Guidelines

In the light of some recent incidents, the Working Group on Communication in Physics was asked to prepare a statement on Ethics Guidelines which was distributed with the agenda. The report was given by Sukekatsu Ushioda, member of the working group. A discussion of the wording led to two changes. The revised document is given in full in (Appendix 5 – Attachment 16).

16. Report on the Second IUPAP conference on Women in Physics

Marcia Barbosa reported on the Second IUPAP Conference on Women in Physics held in Rio de Janeiro, May 23-25, 2005. The conference was a follow-up to the first conference held in Paris, March 2002.

She noted that women are greatly under-represented in physics. Of all the sciences, physics is the subject in which the increase in the number of women involved has been particularly slow. Many bright young people do not get the chance to learn about physics and to prepare themselves for a career in the field. Others are simply discouraged from studying physics altogether.

However, the problem is worse than that. Many of the women who do take physics end up running away from it. Statistics show that a higher proportion of women than men leave physics at each stage of their career – a phenomenon that is often dubbed the “leaky pipeline”. The loss of women from physics represents a loss of half of the potential talent pool.

As an outcome of the Rio meeting several resolutions emerged. From those outcomes Franz, Petroff and Barbosa have proposed some resolutions for consideration by the General Assembly that express things that IUPAP can actually do. These are given in Appendix 6. Resolutions

The meeting adjourned.

Thursday, October 27, 2005: 9:00 a.m. – Third Session

17. Proposal for new “IUPAP Young Scientist Prizes”

Barber reported that the Council and Commission Chairs were proposing that IUPAP prizes for young scientists be approved under the following guidelines. The candidate is to have had up to 8 years of research experience following Ph.D. (For example, time for maternity leave would not be included.) The prize is awarded through the commissions. One medal and US \$1,000 will be provided annually to each commission. The frequency (one to three years) with which the medal is awarded will be determined by the commission. The selection committee will be established by the commission. The same medal will be used by all commissions. Presentation will take place at an international

conference sponsored through the commission. A citation of up to 100 words will be provided by the commission.

Formal endorsement of this proposal was deferred to the consideration of resolutions of the General Assembly.

18. Report from PaNAGIC (Working Group on Particle and Nuclear Astrophysics and Gravitation International Committee)

Enrique Fernandez (Chair) reviewed the history and mandate of PaNAGIC, and identified the commissions that have an interest in the field. The committee meets once a year; in the past triennium it has met in Seattle (2003 (Topics in Astroparticle and Underground Physics Conference), Paris (2004 Neutrino onference) and Zaragoza (2005 TAUP Conference). It has promoted major conferences in the field, TAUP and the Edoardo Amaldi Conference on Gravitational Waves. It has produced a comprehensive report on the status of the field, which has proven useful for science planning. It plans to facilitate the organization of a school in the field and international cooperation in large-scale projects such as km³ -scale neutrino detectors. (Appendix 7: Report by PaNAGIC – attachment 19 to agenda)

19. First presentation of slates for elections and discussion of procedures

President Petroff reviewed the nomination process, including the roles of both liaison committees and the commissions in the process. He pointed out the desirability that members have representation on the commissions or the Council but pointed out that such representation must be weighted according to the number of shares that a member holds. In some cases, members had not respected the necessary deadlines and it had been difficult to ensure that appropriate representation in the commissions occurred. Initially, the commission chairs had worked with the secretariat to propose draft slates which, in turn, had been reviewed carefully at the meeting of the Council and all of the Commission Chairs. The slates presented to the General Assembly were the product of this process in which discipline expertise had to be balanced against membership representation. The slates were recommended by the Council and the Commission Chairs.

20. IUPAP dues for 2005-2008

President Petroff reminded the General Assembly that the financial report had been given and that the Secretary-General was recommending that there be no increase in dues for the years 2006-2008 inclusive. Inasmuch as the resolution passed by the 2002 General Assembly said in part that the “Member dues per unit shall be ... 1850 Euros for the years 2005 and beyond”, no formal resolution was required.

The meeting adjourned for the coffee break.

21. IUPAP conference support and registration fees

Barber reviewed the program of sponsorship of international conferences by IUPAP. Annually 20 to 30 international conferences are sponsored, and most are awarded grants. Grants may be either unrestricted conference grants of travel grants that are designed to assist scientists from developing countries. Applications are made through the IUPAP web site and are due by May 1 of the year

before the year in which the conference is held. This is to enable the commission to assess the application and make a recommendation as to whether it should be supported. The decision on sponsorship is made at the October meeting of the Council.

Full details about conferences can be found by starting at <http://www.iupap.org/conferences/index.html> and then following the appropriate links. In particular, details about the application process and of the criteria and restrictions for sponsorship are given at <http://www.iupap.org/conferences/policies.html>

Barber advised the General Assembly that, in accordance with the directive of the 2002 General Assembly, the limit on conference registration fees had been raised to 425 Euros for conferences to be held in 2006. As described in detail on the web site, this registration fee includes abstract, proceedings, etc., but does not include meals or lodging.

22. Report from C16 on the status of ITER

Jean Jacquinot gave a synopsis of the desirability of pursuing controlled fusion as a primary energy source, then summarized the recent progress with tokamaks which has culminated in the international research with ITER (“the way” in Latin). He then discussed how ITER appeared to be the intermediate step preceding the construction of a fusion reactor that would actually produce power. (Appendix 8: ITER: as worldwide experiment in fusion – Attachment 23 to agenda)

23. Report on the World Year of Physics activities

Martial Ducloy, Chair, WYP International Steering Committee, described the origins of this celebration with the European Physical Society and its development into a worldwide consortium. He listed a sample of the wide range of activities that had taken place to mark this centennial year of Einstein’s famous papers and gave example of some of the commemorative items that had been produced. He then listed the major conferences that had taken place, highlighting those in which IUPAP had collaborated, the inaugural meeting at UNESCO in January in Paris, the 2nd IUPAP Conference on Women in Physics in Rio, and the World Conference on Physics and Sustainable Development. Finally he suggested further ways in which physics could be promoted.

At 12:30 p.m. the meeting adjourned for lunch.

Thursday afternoon, October 27, 2005

2:00 p.m. Buses left from the Waterfront for visit to iThemba LABs. The Director, Dr Dr Krish Bharuth-Ram, welcomed the delegates and gave a brief introduction to the laboratory. This was followed by some short presentations, tea and a tour of the iThemba LABS. At 7:00 buses took the delegates to the Moyo Restaurant in Spier for the conference banquet.

Friday, October 28, 2005: 9:00 a.m. – Fourth Session

25. Report from the ICSU African Office

Robert Kriger, Acting Deputy Director ICSU African Regional Office, described the events leading to the decision in October 2004 to set up the African regional office for ICSU in South Africa. It is planned that this office should identify a database of experts, encourage capacity building, promote

centres of excellence and increase participation of African Scientists in ICSU programs. As the host country, South Africa is providing significant financial support as well as office space and in kind support. This is being done under a ten year agreement which will be evaluated midterm. Based on the ICSU Draft Strategic Plan, the priority areas identified are: health and human well-being, sustainable energy, natural and human-induced hazards, and global climate change. In moving ahead, they wish to work with key partners, among which are the scientific unions such as IUPAP. The next regional meeting for Africa will be held mid- 2006.

26. Election of commissioners and officers

President Petroff reminded the delegates that the slates of Council officers and of commission officers and members had been circulated and discussed. In the absence of further nominations, he called for a vote approving the slates as distributed. Carried.

The full list of officers of Council and of officers and members of commissions will be posted on the IUPAP web site, along with the appropriate contact information. (See <http://www.iupap.org/> and follow the required links.)

27. Votes on all resolutions of the 2005 General Assembly

President Petroff noted that, in considering the various matters since the beginning of the General Assembly, a number of issues had been brought to its attention. In order that these might be dealt with clearly, a series of resolutions were now brought to state the views and decisions of the General Assembly. Each resolution was voted on separately and the following resolutions were approved:

- It is resolved that the report of ICFA be adopted and the mandate of ICFA be continued to the 2008 General Assembly
- It is resolved that the mandate of the Working Group on Communication in Physics be extended to the 2008 General Assembly.
- It is resolved that the Working Group in Condensed Matter be terminated.
- It is resolved that the mandate of PaNAGIC be continued to the 2008 General Assembly.
- It is resolved that the “Resolutions for the Conference on Women in Physics in Rio,” as reported to the 2005 General Assembly (and given in full in Appendix 6), be adopted. The mandate of the Working Group on Women in Physics is continued to the 2008 General Assembly.
- It is resolved that the report of the Working Group on Energy be approved and the mandate of the Working Group is terminated.
- It is resolved that the mandate of the Working Group on Ultrahigh Intensity Lasers (ICUIL) be continued until the 2008 General Assembly.
- It is resolved that IUPAP adopt the report of the Working Group on Nanoscience and extend the mandate of the Working Group until the next General Assembly.

- It is resolved that the “Working Group on International Cooperation in Nuclear Physics” be established with the proposed mandate.
- It is resolved that the proposed IUPAP Young Scientist Prize be approved as outlined.
- It is resolved that the International Organization of Medical Physicists (IOMP) be constituted as an Affiliated Commission of IUPAP (AC4).
- It is resolved that the statement “International Guidelines for Ethical Conduct in Scientific Publishing” be adopted and the mandate of the Working Group on Communication in Physics be continued to the 2008 General Assembly.
- It is resolved that Tunisia shall become a Member of IUPAP as soon as IUPAP has received the first year’s membership dues.
- It is resolved that IUPAP reaffirm its adherence to the policy on the Free Circulation of Scientists.
- It is resolved that the slates of candidates for Commissions be adopted.

Resolution of Appreciation of the 2005 General Assembly

The 2005 General Assembly of IUPAP wishes to take note of and express its appreciation for the efforts of:

iThemba LABS director K. Baruth-Ram

Naomi Haasbroek, Ginny Stone, Audrey Sauls, Lindsay Davids

The South Africa National Research Foundation, Department of Science and Energy

Edmund Zingu

Judy Franz

APS Staff: Jackie Beamon-Kiene, Shirley Wilson, Sara Connors

Bob Barber

Council Members

Burt Richter (Past President)

Guests

President Petroff also added his personal thanks to those named in the last resolution. He then expressed a welcome to the incoming President, Alan Astbury.

The meeting adjourned for coffee break at 10:45 a.m.

28. Report on ICSU activities

Alan Astbury reported on the ICSU General Assembly that took place in Suzhou, China immediately preceding the IUPAP General Assembly. In the last 3 years there has been a serious reorganization of ICSU and the first strategic plan for the next 6 years was presented.

ICSU has focused on environmental priorities and has retreated from an interest in basic science. ICSU priorities are: the International Polar Year (2007-2008), environment and its relationship to sustainable development, natural and human-induced hazards, science for sustainable development, the Millennium Ecosystem Assessment, science and society, universality of science, scientific data and information, capacity building and work with developing countries.

Four regional offices are being created: Africa, Arab Region, Asia and the Pacific (in Malaysia), Latin America (in Rio). IUPAP should cooperate with these offices. The financial picture is very serious, but is now being addressed.

29. New Business from Liaison Committees

There was no new business raised by the liaison committees.

12:30 p.m. Adjournment

President Astbury declared the meeting adjourned.

30. Appendix 1-8

Appendix 1: Presidential address - Pending Full Report

Appendix 2: Financial Report - [Proposed budget, 2006](#):

Appendix 3: Report on Free Circulation -[attachment 10 to agenda Vera Lüth](#)

Appendix 4: [Report of ICFA - attachment 12](#)

Appendix 4a: [ICFA Statement on the ILC -attachment 13](#)

Appendix 5: International Guidelines For Ethical Conduct in Scientific Publishing -[Attachment 16](#)

Appendix 6: [Resolutions for Conference on Women in Physics in Rio](#)

Appendix 7: Report by PaNAGIC- [attachment 19 to agenda](#)

Appendix 8: ITER: as worldwide experiment in fusion - [Attachment 23 to agenda](#)

Statutes

Appendix 1: The International Commissions for the Period 2005-2008

(each Commission is composed of a Chairman, a Vice-Chairman, a Secretary, and ten ordinary Members, all appointed by the General Assembly)

- C.2 Commission on Symbols, Units, Nomenclature, Atomic Masses and Fundamental Constants (SUNAMCO);
- C.3 Commission on Statistical Physics;
- C.4 Commission on Cosmic Rays;
- C.5 Commission on Low Temperature Physics;

- C.6 Commission on Biological Physics;
- C.8 Commission on Semiconductors;
- C.9 Commission on Magnetism;
- C.10 Commission on the Structure & Dynamics of Condensed Matter;
- C.11 Commission on Particles and Fields;
- C.12 Commission on Nuclear Physics;
- C.13 Commission on Physics for Development;
- C.14 Commission on Physics Education;
- C.15 Commission on Atomic, Molecular and Optical Physics;
- C.16 Commission on Plasma Physics;
- C.17 Commission on Quantum Electronics;
- C.18 Commission on Mathematical Physics;
- C.19 Commission on Astrophysics;
- C.20 Commission on Computational Physics.

Affiliated Commissions

- AC.1 International Commission for Optics;
- AC.2 International Commission on General Relativity and Gravitation;
- AC.3 International Commission for Acoustics (former Commission C.7).