

**Item 3: Minutes of IUPAP Working Group 8: Nanoscience**  
**Szeged, Hungary**  
**Sept. 7, 2006**

**Present:** D. Dahlberg, A. Hansen (Secretary), P. Hawrylak, P. Ormos, M. Paalanen, M. Tegze, W. van Wijngaarden (Chair)

**Regrets:** R. Nieminen, R. Slusher

**Guests:** Representing NanoAfnet: A.C. Beye, M. Maaza

1. **Approval of Minutes:** The minutes of the Paris meeting were approved unanimously. (See attachments)
2. **Review of Mandate:** W. van Wijngaarden presented a review of the WG8 mandate and past deliberations (See attachments). The primary objective is to stimulate the development of nanoscience by bringing together researchers from the different areas of Physics as represented by the IUPAP commissions. The Working Group recommended that IUPAP sponsor small meetings that focus on one area of nanoscience as opposed to nanotechnology. These meetings should have an attendance of 50–100 researchers to facilitate new contacts between researchers of different physics backgrounds. At the Paris meeting the following three topics were discussed:
  - a. Nanobiophysics
  - b. Quantum degenerate matter
  - c. Nanoscale transport

The Working Group recommended that IUPAP sponsor a meeting on Nanobiophysics which was held in Szeged Sept 3 – 7, 2006. No decisions regarding whether or not to recommend the other two topics for a future meeting were made.

3. **Report of Nanobiophysics Conference:** This meeting was organized by P. Ormos. He reported that about 75 people attended (See document appended to these minutes). Several members of the Working Group had heard favourable comments about the meeting. A number of attendees did not have a background in biophysics but found this a useful meeting to help them enter the field. The entire Working Group thanked P. Ormos for his hard work in making the Nanobiophysics meeting a great success. **Action:** A report to IUPAP will be prepared by P. Ormos and W. van Wijngaarden.
4. **Nano-African Information Network Initiative:** A. C. Beye and M. Maaze presented talks (see attachments) describing NANOAFNET. This body is coordinating research in 13 countries across the African continent. Members are both individuals and organizations. It offers at present 200 fellowships. There are 24 Ph.D. students working under the program. The vision is to double this number each year except in South Africa where the number already is high. The network has as an explicit goal to improve working conditions in Africa to attract African researchers studying in Europe, Asia and North America back home. This can only be accomplished by improving the research atmosphere i.e. *capacity building*. IUPAP can assist NanoAfnet by:
  - a) providing moral support
  - b) help provide access to electronic journals
  - c) possibly providing awards for students and faculty

**Point a:** IUPAP should be involved with conferences organized by NanoAfnet.

**Point b:** It is difficult for IUPAP to be helpful with respect to journal access. The UN might be helpful in this regard as well as publishing non-profit organizations such as the APS.

**Point c:** The question of joint awards needs to be posed directly to IUPAP Council.

Everyone believed that communication is important and that a representative of NanoAfnet should be an Associate member of the Working Group.

**Action:** Ask IUPAP Council to approve M. Maaza as an Associate Member of the Nanoscience Working Group.

5. **Nanostandardization (SUNAMCO):** The presentation by L. Pendrill, chair of IUPAP's SUNAMCO Commission, was presented (See attachments). He was invited to attend this meeting but could not. **Action:** Request that IUPAP Council approve M. Paalanen as liaison between SUNAMCO and our Working Group.
6. **Commission Reports:** The commission members presented status of their various IUPAP commissions pertaining to Nanoscience (See attachments).
7. **Recommendation for Future Conference:** It was unanimously decided that IUPAP should sponsor a second meeting in Nanoscience as follows.

Tentative Topic:	Quantum Degenerate Matter.
Tentative Time:	February 2008
Place:	Canada (Banff, Quebec City, Toronto or Vancouver)

The organizing committee will consist of the following.

- A. Hansen (C3 – Statistical Physics)
- M. Paalanen (C5 – Low Temperature Phys.)
- Representative of C10 (Condensed Matter)
- W. van Wijngaarden (C15- Atom., Mol, Opt. Phys.) – Chair
- P. Hawrylak (C8 – Semiconductors)
- D. Slusher (C17 – Quantum Electronics)
- R. Nieminen (C20 – Computational Physics)

**Action:** W. van Wijngaarden will submit a formal proposal for IUPAP Council. A request of \$10,000 to support the meeting was unanimously endorsed.

8. **Terms of Working Group Members:** W. van Wijngaarden reported that IUPAP Council would like members to have staggered 3 year terms. It would also be useful to have a Vice Chair but no one volunteered. Several individuals indicated they were substituting for someone else and would only be willing to be a member of the Working Group if their Commission formally approved. **Action:** W. van Wijngaarden will contact those members to check if they wish to continue serving on the Working Group.
9. **Adjournment:** The meeting ended at 7:15 for a working dinner 8:00 – 10:00 pm.

## **Report on the Nanobiophysics Conference**

Biological Research Centre, Szeged, Hungary, September 3-7, 2006

The Conference of Nanobiophysics was organized in Szeged, Hungary, September 3 – 7, 2006. The Conference was the first in a planned series of conferences sponsored by IUPAP in the area of nanoscience.

As it has been discussed during the first meeting of the Nanoscience Working Group, the definition or content of “nanoscience” is not at all obvious, and in different fields they may cover significantly different areas. The choice of the field of the first conference was made on the basis of the fact that in biology the natural size is nanometers, making it an obvious selection.

In the organization of the conference we had to take into account that in the field of biological physics there have already been a number of conferences that belong to the “nano” concept. These are primarily related to single molecule and single particle manipulation studies that represent by today a fairly well characterized set of fields and scientists. Consequently, we tried to include topics and experts from a broader area – even though the meeting was relatively small. The topics covered experimental methods used in nanobiophysics, interesting nanoscale biostructures, modelling, and included areas like magnetic subcellular nanostructures, membrane structures, membrane model systems for biological studies as well as sensoric applications. I emphasize that in most cases truly outstanding experts of the respective topics have participated, the list of lecturers in most impressive. Participants came from Hungary, Japan, Germany, Italy, France, Israel, USA, Sweden, Denmark, Czech Republic, Serbia, Switzerland, Romania, UK. The detailed program including the authors and abstracts is appended.

The participation statistics was the following:

**Participants: 73**

Foreign: 28

Hungarian: 45

**Lectures: 30 (21 invited)**

Foreign: 19

Hungarian: 11

**Posters: 27 (with abstract: 5)**

Due to the generous support by IUPAP (10.000 US\$), and additional support by NKTH (the Hungarian R&D financing agency: 6.000 US\$) the conference could be organized such that in addition to the cost of the organization itself, a significant cost of the participants could be covered.

All local costs of the invited speakers were covered, with travel support to 4 who applied for it. In addition, thanks to the additional Hungarian support the registration fee (that covered meals and social programs) was waived to all participants.

In the end, a most successful meeting has been organized. A number of participants expressed their opinion that the selection of topics was fortunate and made it a most informative and enjoyable meeting.

Szeged, September 18<sup>th</sup>, 2006.

Pal Ormos