

Report to the 2005 General Assembly for 2002-2005
Cape Town, South Africa,
October 26-28, 2005

The mandate of the C18 commission covers the mathematical studies of problems originating in, or relevant to physics, including mathematical models of physical systems, mathematical aspects of physical theories, and computational techniques.

The current Commission, elected at the 24th General Assembly in Berlin, has met once during its mandate using the opportunity of attending a IUPAP sponsored conferences, namely in Lisbon on July 29, 2005, at the XIVth International Congress on Mathematical Physics, with about two thirds of the members present. However, the main part of the commission business was conducted electronically and the commission recommendations were approved by an e-mail vote.

The primary objective of the Commission during its tenure has been to serve the community of mathematical physicists and represent its interests to IUPAP, in the first place by improving communication within the community and with the other branches of physical research. To this aim we have maintained and improved the C18 web site with links to various bodies and research institutions in mathematical physics, as well as a listing of conferences in the field.

We have communicated with the main professional society in the area, the International Association of Mathematical Physicists (IAMP) which was made easy due to the fact that the vicepresident of the IAMP is a C18 member, and vice versa, the chair of C18 belongs to the executive committee of the IAMP. We tried to keep contact with other related societies, in particular through our associated members, but our efforts in this direction have not been fully successful.

On our watch there were several IUPAP supported conferences. In 2003 it was a pair of them, recommended by the previous commission. The most important was the main meeting in the field, the triennial International Congress on Mathematical Physics (ICMP) mentioned above, organized by the IAMP. It reviewed the current trends in mathematical physics and offered a broad scale of activities including a two-day symposium for young researchers and several satellite conferences. The other one was a successful topical conference on the foundations of quantum theory dedicated to the centenary of von Neumann's birth, which was held in October 2003 in Budapest.

The next meeting was the 25th International Colloquium on Group Theoretical Methods in Physics which met in August 2004 in Cocoyoc, Mexico. It offered an interesting scientific program. However, the commission discussed and brought to IUPAP attention also another aspect of this meeting related to the visa policy of Mexican government which made a participation for people from some countries rather difficult.

In 2005 the commission recommended two conferences for IUPAP support. The first is the XVth ICMP which is supposed to meet in August 2006 in Rio de Janeiro. We believe that this meeting will be successful and give a new boost to research in mathematical physics. The other meeting is entitled "Spectral Theory and Mathematical Physics" and will convene in Pasadena in March 2006.

Another way which the commission has chosen to promote excellence in mathematical physics is a proposal to have a pair of awards, named "IUPAP Medal - Mathematical Physics Achievement Award" and "IUPAP Medal - Mathematical Physics Encouragement Award". The first one should

distinguish a person who enriched and impacted the field of mathematical physics, the second one a person who achieved a significant result within the last ten years with preference to individuals from an environment without a strong mathematical physics tradition. The commission prepared a proposal, and it will be approved by IUPAP, the next C18 could award the first pair of these medals.

J.E. Avron, Chair

B. Julia, Vice-Chair

P. Exner, Secretary