

International Union of Pure and Applied Physics (IUPAP) Affiliated Commission AC-4: International Commission on Medical Physics Committee

Report 2008

Introduction

To strengthen the role of Medical Physics in science, in particular with neighbouring branches in physics community like biophysics and biological physics, International Organization for Medical Physics (IOMP) established the International Commission on Medical Physics (ICoMMP) which has been approved by the International Union of Pure and Applied Physics (IUPAP) as an affiliated commission (AC-4). The 1st meeting ICoMMP was held at the World Congress Medical Physics & Biomedical Engineering 2006 in Seoul, Korea. The 2nd meeting of ICoMMP will be scheduled for the World Congress 2009, 7-12 September 2009 in Munich, Germany.

Membership of ICoMMP: 5 IOMP elected Officers, Barry Allen (president), Fridtjof Nüsslin (vice-president, Commission Chair), Azam Niroomand-Rad (past president), Peter Smith (secretary general), George Mawko (treasurer); the Committee-Chairs of ETC (Anchali Krisanachinda), SciC (Cari Borrás), PRC (Kin Yin Cheung) and PC (William Hendee); members nominated by IUPAP and Delegates of IUPAP Commissions (C6: Uli Nienhaus). 3 external scientists coopted by ICoMMP.

Nominations for membership in ICoMMP are intended to be completed in 2008. IUPAP will be invited to provide names to fill their vacancies at the Commission.

Terms of Reference

To advance the application of physics to life sciences and healthcare.

To uphold and support the mission and activities of both IOMP and IUPAP.

To establish closer links between medical physicists and medical engineers and other pure and applied physicists.

To promote the objectives of IUPAP in the area of expertise of ICoMMP.

To encourage pure and applied physicists to contribute to the advancement of medical physics.

To provide advice to IUPAP on the activities and requirements for the development of medical physics.

To foster research and education in biomedical physics and related areas.

Actions initiated during 2008

With regard to the terms of reference in 2008 the Commission Members were involved in the following actions:

Conferences

16th ICMP, 2008:

IOMP organizes biennial International Conference on Medical Physics (ICMP). This year Dubai Health Authority (DHA) and with Emirates Medical Physics Society (EMPS) jointly with IOMP/ICoMMP organized the 16th ICMP "Current and Future Sciences in Radiation Medicine", 14-16 April 2008, in Dubai, UAE. Other international and regional scientific and professional organizations (IOMP, EFOMP, IAEA, ICRP) participated in the scientific program of the ICMP-08. The conference was attended by 407 participants.

Scientific Program included an IOMP Symposium on Radiation Therapy, 5 Plenary Sessions covered: Pharmaceutical, Radiology, MRI, Radiotherapy and Molecular Imaging subjects, 14

Education Sessions, an Interactive Session on Medical Physics Education, an ICRP Scientific Session on New ICRP Recommendations (103 – 2008) and 5 invited papers on Medical Physics e-Encyclopedia, Fetal MRI, Medical Imaging, Invasive Magnetic Hyperthermia and IAEA activities in Dosimetry in Radiotherapy. Nearly 300 papers have been submitted. IOMP when selecting Dubai to host the ICMP intended to foster growing of the medical physics community in that part of the world. IOMP greatly acknowledged the first steps to create a Middle East Federation of Medical Physics (MEFOMP). 14 Members of regional societies (representing 8 countries) initiated the first steps in forming MEFOMP (Coordinator: Ibrahim Duhaini / Lebanon).

Congress of the South African Association of Medical Physics and Biology, June 2008, Durban SA.

The meeting was centered about PET & PET/CT. About 70 participants. A Winter-School on PET/CT was following the scientific meeting and attracted about 100 students, a few also from sub-Saharan countries. Beyond the scientific program organizers provided a forum to encourage establishing appropriate organisational structures for the developing medical physics community in Africa. In a panel discussion 3 items have been addressed:

- a) minimum staffing levels for medical physicists in Radiology,
- b) Certification of Medical Physicists
- c) Ways forward to establish an African Federation.

Creation of a Federation of African Medical Physics Organizations (FAMPO) is on the way.

Status Report on the forthcoming World Congress on Medical Physics and Biomedical Engineering, Munich, Germany, September 7 - 12, 2009

In accordance with IUPESM and its constituting organizations IOMP and IFMBE the mission defined by the hosting societies is to establish the congress as:

- the most important inter- and multidisciplinary platform bringing together people from basic research, R&D, industry and medical applications
- an unique event to experience the presence and the future of Medical Physics, Bio-medical Physics, Clinical Physics, Biomedical Engineering, Clinical Engineering, Bioengineering, Medical Information- and Communication Technique
- the powerful forum to discuss patient safety, systems and process optimization in healthcare
- a unique “selling/presentation point” of intellectual potential through a recruitment area and a job fair

With respect to the actual situation on Medical Physics and Biomedical Engineering in Germany and Europe the organizers expect more than 4,000 visitors to attend.

The program of the congress is structured in 13 Themes each split into several Tracks. One track “*Biophysics-A precursor of Medical Physics*” has been planned to be performed jointly with IOMP, IUPAP & IUPAB. In addition special topics and workshops will be organized in order to build up bridges between themes and to add comprehensive aspects to the matrix structure.

Examples are sessions on Linking Proteomics and Genomics with Biomedical Engineering and Medical Physics, Linking Physiome with Patient Needs, Bridging Fundamental Research with Medical Technology, Medical Engineering and Medical Physics in case of Catastrophes, Patient Safety and Process Optimization. The 1st Call for Papers has been published recently.

Other Actions

The Bill of Rights

IOMP through its Publication Committee (Chair: William Hendee) initiated creating a Bill of Rights for Scientists and Engineers which reflects *concerns about the intrusion of political, cultural and religious pressures upon the research of scientists and engineers, and upon the dissemination of the results of research to governmental policy-makers and to the public at large* (W.Hendee). After approval by IOMP and IFMBE, the document (attachment 1) has been sent for consideration to the umbrella organization of Medical Physics and Biomedical Engineering IUPESM.

A Concern about Plagiarism

IOMP Publications Committee (Chair: William Hendee) which includes the editors-in chief of the major international medical physics journals delivered an editorial entitled *A Concern about Plagiarism*. This document is now published by the majority of all these journals to foster the efforts in combating plagiarism.

IUPAP Young Scientist Award in Medical Physics

To foster Science in Medical Physics IUPAP is funding the *IUPAP Young Scientist Award in Medical Physics* (USD \$1000.00 + IUPAP Medal) which will be awarded at the triennial World Congress, next at the WC-2009 in Munich. The nomination procedure will be announced shortly and posted at the IUPAP website (Attachment 2).

Future Actions

Based on the decisions at the 1st physical meeting at WC-2006 in Seoul and subsequent discussions the following actions are envisaged by the Commission for the near future:

- All IOMP committees should reassess their roles and start to broaden their interests into biomedical areas.
- To prepare a short paper on the broader and related aspects of medical physics
- All present consider possible co-options to the Commission, particularly those who will be able to support and develop the themes identified above.
- Request that IUPAP provide names to fill their vacancies who will be active members of the Commission
- Update of the IUPAP website information for the AC4

Next meetings of the Commission

After completion of the Commission and replacing the vacancies a virtual meeting will take place in December 2008.

A physical meeting of the Commission will be organized during the WC-2009 in Munich, 7-12 September 2009.

Munich, 1.October 2008
Fridtjof Nüsslin - Chair AC-4

Attachment 1

Bill of Rights For Scientists and Engineers

Preamble

A scientist or engineer (S/E) uses understanding, insight and ingenuity to discover new knowledge and to create new technologies that benefit individuals and societies. In pursuing these goals, a S/E must be free to theorize and experiment unimpeded by political pressures, religious dogma or fear of reprisal. Preservation of this freedom is the purpose of the Bill of Rights for Scientists and Engineers. The Bill of Rights is consistent with the Statement on the Universality of Science of the International Council for Science (ICSU).

Articles

1. A S/E is an individual who uses a scientific approach in the pursuit of new knowledge and technologies. A S/E is not required to possess any specific credential such as an academic degree, appointment in an institution, funding by an agency, or membership in an organization.
2. Science and engineering may be practiced in any location; they are not confined to academic institutions, government facilities, or industrial settings. An individual using a scientific approach in a home laboratory is pursuing science or engineering just as is a S/E employed by an institution, industry or government agency. No prejudice towards the work of a S/E shall be exercised based on an individual's affiliation or lack thereof with a particular institution, organization or agency.
3. A S/E shall not be dissuaded from pursuing scientific inquiry because of political or religious concerns, or because the inquiry deviates from a conventional perspective.
4. A S/E shall be able to use any approach to new knowledge and technologies, limited only by the restrictions that the approach follows sound scientific principles and does not violate societal ethical precepts.
5. A S/E shall be free to collaborate with other individuals in the same or other locations, with the understanding that collaboration may require covenants protecting confidentiality and intellectual property.
6. A S/E shall not be subject to restraints in the presentation and publication of results that are imposed by political or religious entities or because the findings conflict with traditional knowledge. Scientific and engineering results should always be evaluated on their merits and not because of preconceived notions of "truth".
7. A S/E shall decide who should coauthor scientific publications based on well-established guidelines for co-authorship. Courtesy authorship to senior personnel in a S/E's laboratory or institution is unacceptable.
8. A S/E shall strive to ensure that scientific results are widely accessible to the scientific community.

9. A S/E should object to misuse of research findings for political, ideological or financial purposes.

10. At all times a S/E shall adhere to universal ethical and moral standards.

William Hendee PhD
Editor, Medical Physics
Chair, Publications Committee
International Organization of Medical Physics

Attachment 2

IUPAP Young Scientist Award in Medical Physics

An award established and funded by the international Union of Pure and Applied Physics (IUPAP) and awarded by the International Organization for Medical Physics (IOMP) as the IUPAP affiliated International Commission for Medical Physics.

Name of the Award

IUPAP Young Scientist Award in Medical Physics

Frequency/Venue:

- Triennially, one IUPAP Young Scientist Award will be given on the occasion of the World Congress on Medical Physics and Biomedical Engineering (WC).
- The Award will be \$1000 plus an IUPAP medal

Criteria for selection:

- The recipient of the Award should have a maximum of 8 years research experiences (not including maternity leave) following Ph.D. on January 1 of that year.
- The recipient should have performed original and/or applied work of outstanding scientific quality in medical physics.
- Preference will be given to young medical physicists from developing countries.

Nominating Procedure

- The award will be widely advertised by the International Organization for Medical Physics (IOMP) mailing list and website.
- Self-nomination will not be considered.
- Nominations are to be made to the Chair of AC4 Award Committee and should include the followings:
 - A letter of not more than 1,000 words evaluating nominee's achievements and identifying the specific work to be recognized.
 - A Curriculum Vita including all publications.
 - A brief biographical sketch.
- Closing date for 2009 award. To be announced

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