IFMBE News
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International Federation for Medical & Biological Engineering

Encouraging research and the application of knowledge, disseminating information, and promoting collaboration in the field of medical, clinical and biological engineering

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President's Column
Dues of national societies

During the last meeting of the IFMBE officers that took place in Singapore, we discussed the dues that national member societies pay to IFMBE. It was pointed out that the present dues have not been increased since 1993 while at the same time the cost of living has gone up significantly. The current fee structure is as follows. For societies with less than 500 members the annual dues are £0.75 per member or approximately 1 US$.

For societies with more than 500 members the dues are £0.75 per member for the first 500 members and £5 per 100 members thereafter. This fee structure favours larger societies while placing smaller societies at a disadvantage. If anything, large societies should partially subsidise smaller societies which generally tend to come from less affluent countries, although this is not always the case and "larger" does not always mean "richer".

More importantly, this has made it very difficult for IFMBE to provide adequate services to its national members and practically impossible to initiate important projects that would benefit our profession.

The officers are recommending a modest increase as well as a revised fee structure. This is likely to result in small increase for smaller societies (maybe 15-20% per individual) and somewhat larger overall increase for larger societies with membership of over 500 as the fee will likely become linear with the number of members. This will be discussed during the next Administrative Council Meeting to be held in Pula in June 2001.

I urge you to consult your membership and be prepared to discuss it at the National Secretaries meeting in Pula. The Administrative Council wants to make sure that all of our members understand the reasons behind the suggested fee increase and that the societies support the Federation in providing improved services to the profession.

I would also welcome comments sent to me directly prior the June meeting of the Administrative Council.

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Meeting Report
ICSU International Scientific Unions
Paris
18-20 February 2001

Three members of the ICSU Liaison Committee (Jean-Pierre Morucci, President of IUPESM, Keith Boddy, Past-President of IUPESM and Dov Jaron, President of IFMBE) attended the Meeting of the ICSU International Scientific Unions in Paris on 18-20 February 2001. The meeting, midway between General Assemblies, was the first of its kind and represents an essential step towards improving communication between the Unions themselves, as well as with ICSU's Executive and Secretariat. It largely achieved that goal. Importantly, we were able to establish IUPESM not only as a refreshing addition to the ICSU family but also as a respected contributor.

Introduction

INTERNATIONAL COUNCIL FOR SCIENCE (ICSU)

ICSU is a non-governmental organisation, founded in 1931 to bring together natural scientists in international scientific endeavour. It comprises 98 multi-disciplinary National Scientific Members (scientific research councils or science academies) and 26 international, single-discipline Scientific Unions to provide a wide spectrum of scientific expertise enabling Members to address major international, interdisciplinary issues which none could handle alone. International Scientific Union

Members are international, non-governmental, professional organisations devoted to the promotion of activities in a particular area of science which have been in existence for at least six years.

ICSU's objectives are set out in its statutes and rules of procedure, to which all Members and Associates of ICSU adhere. One of the fundamental principles of ICSU is that of the universality of science, which affirms the right and freedom of scientists to associate in international scientific activity without regard to such factors as citizenship, religion, creed, political stance, ethnic origin, race, colour, language, age or sex.

Having achieved the status of a Full Member of ICSU in 1999, IUPESM is among the elite of international Unions and must be able to become an influential advocate globally for medical physics and biomedical engineering and to play a full part in establishing its own programmes and collaborating with other members of the ICSU family on projects of global significance.

ICSU Liaison Committee

IUPESM has created an ICSU Liaison Committee whose duties are to:

- build on established excellent relations with the ICSU Secretariat;
- establish and maintain a good working knowledge of existing and proposed programmes within ICSU;
- determine principal and secondary interests of other Unions and bodies within ICSU and generate a spirit of collaboration ;
- identify areas of potential future collaboration, especially global projects;
- stimulate and consider programme proposals within IUPESM (IFMBE and IOMP) as candidates for grants either from ICSU itself or other international bodies, such as UNESCO, WHO, European Union, with the support (and stature) of ICSU;
- formulate grant proposals and recommend priorities to the IUPESM Council;
- participate in ICSU committees and activities;
- contribute "populist" articles to ICSU's journal *Science International* on various aspects of medical physics and biomedical engineering;
- prepare proposals and contributions to be made at the ICSU General Assemblies.

Issues discussed

Unions identified priorities for ICSU

The Unions identified priorities for ICSU:

- increased feedback and transparency (the latter particularly for grants);
- increased visibility and higher profile;
- 'top-down' leadership on appropriate major issues;
- becoming more 'pro-active instead of being primarily reactive;
- providing governments with guidelines and authoritative information;
- establish a role for ICSU as a legal advisory body between science and politics;
- recognise potential problems of co-existence between the 26 Unions and the scientific academies, with their associated inter-academy council and inter-academy panel, and act as a facilitator and catalyst.

Proposed priorities for ICSU support for Scientific Unions' education/capacity building activities

The participants were urged to identify specific practical activities that could be undertaken in the near future to improve collaboration and to strengthen ICSU's capacity building activities. (The definition of capacity building from ICSU is: "activities that lead to the establishment or strengthening of a corps of qualified scientists with a supporting infrastructure – including facilities and working conditions that enable them to conduct research, education, training and advisory work, particularly in areas of direct societal significance".)

Ongoing activities of the Scientific Unions in capacity building

Representatives of the Unions were asked to provide a two-minute statement on what their priorities are in capacity building; recent size and scope of programmes; and future Union priorities for capacity building. The statements of IUPESM were as follows:

IUPESM comprises a global network of 40,000 graduate physical scientists and engineers in about 100 countries. IUPESM has three key programmes to and symbiotic to PCBS (Programme on Capacity Building in Science):

- Education, training and continued professional development for the 21st century with particular reference to developing and emerging countries: for instance, regional training courses are held. Support is also provided to young scientists for attending our congresses and, mainly, our world congress (with special award for young scientist presentation of papers). We support also eastern countries and other countries in transition to permit scientists to attend our conferences.
- Global medical information networking and implementation for developing and emerging countries. It concerns the provision on the web of education material (a textbook on medical physics and we are working now on an encyclopaedia of biomedical engineering).
- Public awareness and education: this concerns, for instance, production on-line of a brochure and hard copies aimed at governmental and public understanding of present and future innovations in physical and engineering sciences in medicine and their implications for health care of patients and people with disabilities.

World class scientific research centres

The promotion of world class scientific research centres, with a regional focus, as a capacity building strategy in developing countries was presented by the COSTED representative. What has been the experience of some of the Unions who have used regional approaches to carry out their capacity building activities in developing countries? What suggestions do the Unions have for ICSU regarding the role of regional scientific research centres to support capacity building for science? An interesting experience in Tanzania was described.

One interesting example was given by Dov Jaron "The Co-Laboratory", a major centre with equipment, facilities, staff and knowledge linked electronically to other labs everywhere in the world (a microscope Centre in San Diego is linked to Japan). Could this situation be extended to countries in transition?

Conclusion

The participants were urged to identify specific practical activities that could be undertaken in the near future to improve collaboration and to strengthen ICSU's capacity building activities. A spin-off was the identification of activities that could be of potential benefit if adapted for IUPESM. Most notable were:

- "pictures with no words" was being used for education and training (via the internet) for developing countries, eliminating language problems. We could also consider having 'lectures' on the internet with local presentation;
- 'mini-science kits' were being provided for teaching in developing countries;
- CD-ROMs were being provided for education and training – this could include schools in all countries to promote interest in physics and engineering as careers;
- short- term visits were being sponsored for scientists from developing countries;
- an internet journal: specifically, as a first step, IOMP and IFMBE could consider combining their newsletters in an IUPESM newsletter/ journal on our website.

Emerging scientific issues

How to identify them? How to promote relevant ICSU action on them? The Unions were asked to list their emerging scientific issues using keywords. The list proposed by IUPESM is given below:

- ageing and related home care;
- cellular and tissue engineering;
- nanotechnology impact in medicine;
- ethical problems linked to progress in bioengineering;
- health costs: effectiveness of high technology medicine, is it needed?
- public awareness of science and technology: understanding by policy makers, press and public of contributions of science and engineering to health care.

Inter-Union collaboration

The numerous personal contacts we established were very important, identifying immediately a number of fields of common interest with some other Unions. Inter-Union collaboration is encouraged by a 'Joint Grant' system. Collaboration with two other Unions, the IUPS (International Union of Physiological Sciences) and URSI (International Union of the Radio Science) was established during the meeting on projects that might result in IUPESM's first joint grant applications to ICSU.

Liaison Officer

It was suggested that each Union appoints a Liaison Officer and that ICSU might identify a co-ordinator from its staff, at least, for biosciences. This proposal is being actively considered and use of the ICSU website was encouraged, possibly including a chat room.

Conclusion

A productive meeting, which was especially timely and beneficial to IUPESM so soon after our election into ICSU. We now have a much better knowledge of, at least, a part of the ICSU family and equally importantly the administration. As the new member of the family, it was particularly valuable to gain insights of the other Scientific Unions and, hopefully as IUPESM wishes to be a highly productive, dynamic collaborator, we were able to introduce ourselves fully.

Given 26 independent Unions, there was perhaps inevitably a great deal of self-interest, particularly at the outset, and wide-ranging views of topics of future importance. However, there were issues of common concern. During discussions, several of our proposals were not only well-received but also generated common interest and support, some becoming 'adopted'. These included:

- public understanding of science, which is being pursued most actively;
- health and wellbeing, which may become an ICSU theme;
- balanced (expert) statements under the aegis of ICSU on topics of international concern;
- online educational material illustrated by our textbook on medical physics and the encyclopaedia of biomedical engineering and recognised by the offer of inclusion on the ICSU website.
- there was also substantial interest in the example of a 'co-laboratory', described by Dov Jaron.

It seems reasonable to conclude that participation in this meeting marked the "coming of age" of IUPESM.

Last-minute information

ICSU Grant Programme 2002

As a consequence of the contacts during the Paris meeting, we have formulated two collaborative grants programmes and submitted them for consideration by ICSU. These are:

- developing the physiome project: modelling the lung. This project is in collaboration with IUPS (International Union of Physiological Sciences). It has a very high priority for IUPESM as well as IUPS. Fumihiko Kajiya is directly involved;

- bridging the digital divide. This project is in collaboration with URSI (International Union of Radio Science) and reflects the practical experience within IUPESM in implementing telemetry for medical purposes, especially in relation to developing countries.

Additionally, we have been contacted by the Academy of Sciences from Armenia on a project titled "Organisation and Development on Telemedecine in Armenia" which could be envisaged in the ICSU 2003 Grant Programme.

Block grant

We have received the following letter from Larry Kohler, Executive Director of ICSU:

"Today I am writing to inform you of the ICSU Executive Board's decision regarding the award of the block grant. This decision was made based on a proposal from the Committee for Scientific Planning and Review (CSPR), who met just after the Unions meeting. The CSPR felt a strong need to respond to concerns and requests expressed at the Unions meeting in their discussions on the grants programme, reviews, and new initiatives. They found it particularly necessary to take an immediate action through the grants programme to encourage the significant number of activities underway within the Unions such as those on capacity building, and on other critical issues. The following are the contents of the Executive Board's decision on the block grant: Each of the Member Unions should be awarded a $5,000 grant to be used in any of the five areas allowed in the Grants Programme 2002 (i.e. Science and Technology for Sustainable Development, Capacity Building and Science Education, Science/Policy Interface, Dissemination of Information on Science and Technology, and Emerging Science and Technology – Creation of New Knowledge).

This block grant is to be considered as part of the approval process for the Grants Programme 2002, but it will be awarded immediately upon receipt of a request by the Union and could be used in 2001 and 2002.

Each Union that accepts this block grant is asked to submit a report on the use of the grant as soon as it is used to facilitate assessment of the effectiveness of this "Block Grant" initiative."

The availability of a block grant will be particularly valuable to IUPESM in this early stage of our more direct involvement within the ICSU family. We have requested this grant to pursue an action, proposed previously by Keith Boddy, on improving Public Understanding of Science, including political decision makers and opinion formers especially (but not only) in developing countries. A document to be entitled "Contributions of Physics and Engineering in Health Care" will be written in terms readily understandable by the lay person and to make it available on the IUPESM website and also that of ICSU as well as a hard copy brochure. We would hope to enlist the stature and support of ICSU in targeting key members of government worldwide as recipients of the brochure.

Jean-Pierre Morucci, Keith Boddy and Dov Jaron
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MBEC News

The online version of *Medical & Biological Engineering & Computing*, the official journal of the International Federation for Medical & Biological Engineering, can be found by simply following the Fedaration Journal link from the IFMBE homepage, which can be found at www.ifmbe.org. In addition to a guide to authors, the site now features a browsable index of all papers published in *Medical & Biological Engineering & Computing* in 2000. Visit the site now to discover the range of papers published in the course of the last year as well as details of recently published papers. Details about how to submit and subscribe to the journal can be found on the back page of this issue.

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International Union of Physical and Engineering Sciences in Medicine 2000 Annual Report

Introduction

The principal objectives of IUPESM are: (a) to contribute to the advancement of physical and engineering science in medicine for the benefit and wellbeing of humanity; (b) to organise international co-operation and promote communication among those engaged in healthcare science and technology; (c) to co-ordinate activities of mutual interest to engineering and physical scientists within the healthcare field, including international and regional scientific conferences, seminars, working groups, regional support programs and scientific and technical publications; (d) to represent the professional interests and views of engineers and physical scientists in the healthcare community.

Membership

The founding Constituent Organisations of the IUPESM are the *International Federation for Medical and Biological Engineering* and the *International Organization for Medical Physics*. National Members are any countries having adherence with any of the Constituent Organisations . The number of National Members of IOMP is 70 and that of the IFMBE is 44. An overlap in membership between the Constituent Organisation results in a total national membership of 80.

Vital statistics

Two Constituent Organisations , 80 national organisations, consultative status at IAEA, PAHO and WHO, more than 40,300 individual members, triennial World Congress on Medical Physics and Biomedical Engineering, approximately 16 regional scientific meetings and 15 educational courses organised in 2000, two journals, two electronic newsletters and internet webpages, 80 sponsored specialty libraries in developing countries

Organisational matters

Virtual meetings of the 11-member IUPESM Administrative Council are held on a quarterly basis using electronic communications to manage ongoing affairs. Minutes of these meeting are posted on the IUPESM homepage http://www.iupesm.org/ The General Assembly is informed of Administrative Council actions by email announcements to delegate mailing lists. The 200-member General Assembly meets presently on a triennial basis at each instance of the World Congress on Medical Physics and Biomedical Engineering. Dues and income from meetings are collected by the Secretaries-General of IUPESM, IOMP and IFMBE. At present the collective financial assets of the IUPESM and its two Member Organisations is in excess of $500,000. The financial assets of several of the member societies exceed these levels by one or more orders of magnitude. Projects of common interest with these National Members allow the IUPESM to leverage projects significantly beyond the budgetary limits of the Union. The Secretariat of the IUPESM presently resides with the Secretariat of the IOMP in San Antonio, Texas (USA) while the Secretariat of IFMBE is in Sweden.

Activities undertaken during 2000

The main event of the year 2000 was the World Congress on Medical Physics and Biomedical Engineering, Chicago (USA) on 23-28 July with more than 4600 attendants including about 900 students and 1100 exhibitors.

National Conferences or Workshops with International Participation

Clinical Engineering Workshops in 2000; Helsinki (Finland), January; Santo Domingo (Dominican Republic), April; Riga (Latvia), May; Wurzburg (Germany), June; Chicago

(USA), July; Vilnius (Lithuania); Panama City (Panama), October; Second European Symposium on Biomedical Engineering and Medical Physics, Patras (Greece), October; Workshop on Biomedical Engineering Education, Chicago (USA), July; First Slovenian-Croatian Meeting on Biomedical Engineering, Bled (Slovenia) October; First Japanese-Korean Symposium on Medical and Biological Engineering, Osaka (Japan); Fifth Portuguese Conference on Biomedical Engineering, Coimbra (Portugal), May; Eigth National Conference on Biomedical Physics and Engineering, Sofia (Bulgaria), October; International Conference on Radiation and its role in Diagnostic and Treatment FICR 2000 Tehran (Iran), October; Conference on Medical Radiation Physics and Engineering, Lisboa (Portugal), November; National Science Meeting, Kuala Lumpur (Malaysia) April.

Graduate education programs in medical physics as an aid to both students and professionals are organised in 19 countries all over the world. The IOMP medical physics education programs during the year 2000 were in Algiers, Algeria (January, 2000), Bangkok, Thailand (May/June, 2000), Prague, Czech Republic (October, 2000), Sofia, Bulgaria (October, 2000), Tehran, Iran (October, 2000), Lisbon, Portugal (November, 2000). IOMP special topic scientific meetings were held in Beijing, China on 27-29 May 2000, Latin American regional meeting "Nuevas Técnicas en Radioterapia", Chicago, Illinois, on 17-22 July 2000, and Bangalore, India, November, 2000.

The internet international listing of graduate education programs initiated in 1999 is now completed.

Work continues on a global online medical physics textbook and an online encyclopedia of biomedical engineering. A special focus is given on building a global communications network for all the Members of the Union.

Conclusion and future plans

The Union has established Key Programmes, which are complementary to and symbiotic with those of ICSU. They include public and governmental understanding of health sciences; education, training and continued professional development for the 21st century and global biomedical information networking for developing countries; evidence based health technology; and medical equipment evaluation.

IUPESM has created *an ICSU Liaison Committee* whose duties are to:

- build on established excellent relations with the ICSU Secretariat
- establish and maintain a good working knowledge of existing and proposed programmes within ICSU
- determine principal and secondary interests of other unions and bodies within ICSU and generate a spirit of collaboration
- identify areas of potential future collaboration, especially global projects
- stimulate and consider programme proposals within IUPESM (IFMBE and IOMP) as candidates for grants either from ICSU itself or other international bodies, such as UNESCO, WHO, European Union, with the support (and stature) of ICSU
- formulate grant proposals and recommend priorities to the IUPESM Council
- participate in ICSU committees and activities
- contribute "populist" articles to ICSU's journal *Science International* on various aspects of medical physics and biomedical engineering
- prepare proposals and contributions to be made at the ICSU General Assemblies.

IUPESM is establishing collaboration with other members of the ICSU family on these and related projects.

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International Council for Science
ICSU for Beginners

Preamble

The International Council of Scientific Unions was created in 1931 to promote international scientific activity in the different branches of science and their applications for the benefit of humanity. At an Extraordinary General Assembly in April 1998 the name was changed to ICSU: the International Council for Science. Since its creation, ICSU has vigorously pursued a policy of non-discrimination, affirming the rights and freedom of scientists throughout the world to engage in international scientific activity without regard to such factors as citizenship, religion, creed, political stance, ethnic origin, race, colour, language, age or sex.

ICSU is a non-governmental organisation with two categories of membership: National Scientific Members (*scientific academies* or *research councils*) which are national, multidisciplinary bodies (98 members), and *Scientific Unions*, which are international, disciplinary organisations (26 members). The complement of these two groups provides a wide spectrum of scientific expertise enabling members to address major international, interdisciplinary issues which none of them could handle alone. In addition, ICSU has 28 International or Regional Scientific Associates, which are organisations in the natural sciences or fields cognate to those of ICSU (such as the humanistic, medical, social and technical sciences) and whose scientific activities do not fall within the scope of a single Scientific Union Member of ICSU.

The Council seeks to accomplish its role in a number of ways. First, it initiates, designs and co-ordinates major international, interdisciplinary research programmes, such as the International Geophysical Year (1957-58), the International Biological Programme (1964-74), or the more recent International Geosphere-Biosphere Programme: A Study of Global Change (IGBP). Second, ICSU fosters interdisciplinary bodies, which undertake activities and research programmes of interest to several member bodies. Examples of such activities include antarctic, oceanic, space and water research, problems of the environment, solar-terrestrial physics, genetic experimentation and biotechnology.

In addition to these programmes and activities, which seek to break the barriers of specialisation, several bodies set up within ICSU address matters of common concern to all scientists, such as: capacity building in science; data; science and technology in developing countries; ethics; and freedom in the conduct of science.

The Council also acts as a focus for the exchange of ideas, the communication of scientific information and the development of scientific standards. Scientific conferences, congresses and symposia are organised by ICSU members all round the world - the total in excess of 600 a year, and a wide range of newsletters, handbooks, learned journals and proceedings of meetings is published. ICSU also assists in the creation of international and regional networks of scientists with similar interests. ICSU maintains close working relations with a number of intergovernmental and non-governmental organisations, in particular with UNESCO, in co-operation with which a number of international programmes have been launched and are being run, and with the World Meteorological Organization (WMO).

Finally, because ICSU is in contact, through its membership, with hundreds of thousands of scientists world-wide, it is being increasingly called upon to speak on behalf of the world scientific community and act as an adviser in matters ranging from ethics to the environment.

How are ICSU and its governing bodies organised?

The highest governing body of ICSU is the *General Assembly*. Implementation of policy and day-to-day matters are dealt with by the *Officers* and the *Executive Board*.

The *General Assembly*, composed of the National Scientific Members and the International Scientific Unions, meets every three years and is responsible for setting the general direction, policies and priorities for ICSU for the next triennium, including the level of dues of its Members. Whilst only the full Members of ICSU may vote at the Assembly, all members of the ICSU family may attend (full Members, Associates, Observers, and interdisciplinary scientific bodies). It adopts Resolutions on matters of importance to its Members, which it is then the responsibility of the Executive Board to implement in between sessions of the Assembly.

The *Executive Board* is composed of six Officers and eight Ordinary Members (four from the National Scientific Members and four from the International Scientific Unions) elected by the General Assembly from nominations proposed by Members. It is responsible for policy implementation, formulation of issues needing to be addressed and the day-to-day administration of ICSU. It is assisted in these tasks by a *Secretariat* headed by an *Executive Director*. The Executive Board normally meets twice a year and, in addition, the Officers also meet separately twice a year.

ICSU has the following five Policy Committees and three Advisory Committees, which are Statutory bodies responsible to the Executive Board and the General Assembly):

Policy Committees:

- Scientific Planning and Review
- Governance
- Finance and Fund-raising
- Freedom in the Conduct of Science
- Responsibility and Ethics in Science

Advisory Committees:

- Dissemination of Scientific Information
- Science and Technology in Developing Countries (COSTED) and International Scientific Networks
- Environment

What are the roles of National Members and of Union Members?

- National Members provide input on: national, international and societal needs as well as scientific; on priority areas for future ICSU activities; and on facilitating links with governments and intergovernmental organizations
- Union Members provide scientific expertise and input on scientific priority areas for future ICSU activities and facilitate links with the scientific community and non-governmental international organizations
- On financial matters, each Member has an equal vote; on other matters, votes are weighted so that the two sets of Members have an equal total vote
- All pay dues at a level of their choosing

What are the obligations of membership in ICSU?

Both the Scientific Union and National Scientific Members of ICSU and the Scientific and Regional Associates are required to pay dues annually. The Scientific Union Members are required to submit annual reports, as are the Interdisciplinary Bodies, and Scientific and Regional Associates. The Secretariat sends out written requests for all these each year.

In addition, ICSU is a network of its members, who are encouraged to take advantage of this in a proactive manner. The strength and influence of ICSU depends not only on the responsiveness of its membership to requests for assistance but on the ideas and information communicated to ICSU on their own initiative.

What kind of activities does ICSU support, how and when?

What:

Global and/or interdisciplinary through *financial aid* and advice on *organizational matters* and encouragement and help with *implementation of specific activities*. Upon request ICSU can provide an *evaluation mechanism* for activities or institutions and can act as the *voice of science* providing *visibility* for its members and their activities to the inter-governmental and non-governmental world in general. ICSU particularly encourages interdisciplinary activities and can act as a clearinghouse for members to put them in contact with like-minded bodies, both within and outside the ICSU family. Certain of the ICSU Scientific Committees (known as Interdisciplinary Bodies) have specific remits of broad general interest to all members, for example the Committee on Capacity Building in Science and the World Data Centres. An extensive programme on risk assessment is being carried out on ICSU's behalf by its Scientific Committee on Problems of the Environment.

How:

Financial aid

International Scientific Union Members of ICSU and the Interdisciplinary Bodies created by ICSU may apply for funding of specific projects through the ICSU Grants Programme. This Programme is divided into two parts: large grants (US$50,000-100,000) particularly aimed at new initiatives, and small grants (up to US$50,000) to be used as seed money. Application forms for requests for grants are sent to members around June of each year and must be received by 31 March of the succeeding year for allocation the year after that. The following are the present priority themes for funding in 2002:

- Science and Technology for Sustainable Development;
- Capacity Building and Science Education;
- Science / Policy Interface;
- Dissemination of Information on Science and Technology;
- Emerging Science and Technology – Creation of New Knowledge.

ICSU can also assist in requests for financial support addressed to other agencies and in identifying appropriate agencies to contact. The ICSU Grants' Programme can be useful leverage when seeking other funding.

Implementation of and publicity for specific activities

ICSU can encourage and promote specific activities, particularly new initiatives, through acting as a clearing house for information, providing its imprimatur as appropriate, publicising activities of members (e.g. in the ICSU Newsletter, *Science International,* and through ICSU's webpage and website links) and can also help in identifying appropriate partners both within ICSU and in the wider community (intergovernmental and non-governmental organizations). Members are encouraged to organise fora on specific activities at the time of the ICSU General Assembly.

Example of activities where ICSU can act as a source of advice and as a clearinghouse for information:

- travel grant programmes;
- capacity building: (curriculum activities, training opportunities, speaker bureaus);
- young scientist exchange;
- access to ICSU's database of members, partner organizations and individuals.

Evaluation mechanism

When requested, ICSU will mobilise resources to provide a peer review system for evaluation of activities or institutions.

Voice of science/visibility

As the major non-governmental scientific organization worldwide, through its two categories of membership ICSU provides an impartial voice for science and a greater impact on international fora than members could achieve alone.

How can I participate in a particular activity?

Volunteer! Either by writing directly to the relevant bodies (groups, committees, etc.) or by participation in meetings of the ICSU family.

What kind of quality assessment activities does ICSU have?

- Programme reviews - all ICSU interdisciplinary bodies are subject to statutory review every six years and may be discontinued if the review is unsatisfactory
- Appointment by Executive Board of Chairs and membership for Programmes and some ICSU interdisciplinary bodies through an international search ensures the high quality of the scientists involved
- Encouragement of self-reviews by Unions and National Members
- Review process of statements and grants
- Financial audit

How does ICSU disseminate policy?

Through the General Assembly Resolutions and through ICSU Statements, information, position/state of the art assessment reports disseminated to the ICSU international network of members and of partner organizations both intergovernmental and non-governmental. These may be either ICSU initiated (at the request of Members of ICSU) or ICSU-sponsored after consultation within the ICSU family. ICSU has issued Statements on: Gene Patenting (1992),

Freedom in the Conduct of Science (1995), Use of Animals in Research and Education (1996). In addition, the ICSU/CODATA *Ad hoc* Group on Data and Information has issued a Set of Principles for Dissemination of Scientific Data (1999).

How does ICSU relate to the UN system?

ICSU has official relations with several members of the UN system and sponsors joint programmes with different UN agencies, notably with WMO and UNESCO (*e.g.*, WCRP, the Global Observing Systems, DIVERSITAS). UNESCO, with which ICSU has particularly close relations funds approximately half of the ICSU Grants' Programme. Through these relations, members of ICSU have access to UN bodies that relate to their interests and that may assist them in achieving their aims.

How is ICSU evolving? Where is it going?

ICSU evolved from the International Research Council, which was founded in 1919 and initially comprised only National Scientific Members. It progressively embraced an increasing number of Scientific Union Members to give it the broad scientific and international base that it has today. Several organizational changes have resulted from an in-depth assessment which was completed in 1996. The urgent global needs that have in part been recognised through science now present both challenges and opportunities for ICSU that are increasingly likely to require interdisciplinary approaches.

Where do I get information on ICSU programmes and whom do I contact?

ICSU Secretariat, 51, Bd de Montmorency, 75016 Paris, France.
Tel.: 33 (0) 1 45 25 03 29; fax: 33 (0) 1 42 88 94 31; email: secretariat@icsu.org
Website: www.icsu.org

Conference Announcement

Joint Eighth Ragnar Granit Symposium and First CSC Scientific Meeting

Cardiovascular Hemodynamics from Modelling to Clinical Applications

13-14 September 2001

Lord Hotel, Helsinki, Finland

Virtual surgery and virtual patient are emerging tools formed by recent development in medical imaging, measurement of physiological signals and computational modelling. New modalities in magnetic resonance and ultrasound imaging provide fundamental information on the anatomy and dynamics of the cardiovascular system. These are the key elements in constructing models of this complex system. The new possibilities to model blood flow and the haemodynamic control system provide novel clinical information by combining the measured data, physical phenomena and computational tools. These tools help to develop better measurement methods of the key cardiovascular functions such as the cardiac output.

The goal of the symposium is to bring together clinicians, modellers, and persons working in medical imaging. The emphasis is on the present and emerging clinical applications of modelling and on new possibilities for measuring cardiovascular functions. The symposium is closely connected to the research of the international research program DynAMo (www.tut.fi/dynamo)

For information, please visit http://www.ee.tut.fi/rgi/symposia

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Prof. Dr Dr h.c. mult. Max Schaldach 1936-2001

Max Schaldach, an eminent leader in biomedical engineering and a pioneer in pacemaker technology, died on 5 May 2001. Born in Berlin (Germany) on 19 July 1936, he was one of the young Berliners who first had to learn how to survive and to organise his life in the postwar era. He continued to live in Berlin, both when the city was divided in two parts by the Iron Curtain (East and West), as well as after the city was reunified. He was a student of physics at the Technical University Berlin, and became an outstanding entrepreneur at a very early age. He founded the company, BIOTRONIK, in a backyard in Berlin in 1963, a year before he graduated with his Master of Science degree. In his later years, Berlin was the city to which he always returned from his frequent visits and stays abroad.

The topic of his Master's thesis proved to be a productive area for many of his later scientific activities, which included physics of solids, semiconductors, and phase boundaries. He completed his PhD in 1966 with a specific focus on the Germanium-electrolyte phase boundary. In parallel, with his more application-oriented work on medical devices, Max Schaldach continued his discipline-oriented physics research on solid-state physics and physical electrochemistry, leading to his post-doctoral thesis in 1968, which covered the topic of potential and charge distribution at the phase-boundary between a semiconductor and an electrolyte. In 1970, he became Professor of Experimental Physics at the Technical University in Berlin. This was followed by his appointment to the Chair of Medical Physics at the Friedrich-Alexander-University in Erlangen-Nuremberg, Germany, also in 1970.

Even as a student, Max Schaldach became deeply interested in advanced medical technology and biomedical engineering, developing active collaborations with numerous clinical groups. He pioneered the development of the first cardiac pacemaker in Germany, which led to the creation of BIOTRONIK, a company that is globally ranked worldwide as one of the leaders in pacemaker technology today. He always remained true to his two guiding principles: (1) science and technology must be utilised for the benefit of mankind with special concern for patients; and (2) only products that meet the highest requirements in quality and safety should be made available.

Max Schaldach served as a distinguished chair of Medical and Engineering Physics in Erlangen-Nuremberg, a chair that was established with a grant from the Volkswagen Foundation. At that time, medical physics and biomedical engineering in Germany were in their infancy period. Max Schaldach was challenged by the risks and opportunities of this young discipline and renounced a more secure career in the well-established area of physics.

He was a teacher and a mentor of outstanding merit, passionate to the core, always promoting young people and giving them the opportunity to develop their capabilities and talents. He served as the research advisor for more than 250 Masters, PhD, and post-doctoral theses during his academic tenure. His students and assistants were exceptionally successful in academic competitions for students and young investigators. If one of his young coworkers was a winner in such a competition, he felt proud and enjoyed the celebration of this success with his team. After the end of the former Soviet Union, he organised and

financially supported summer schools in Russia and the Ukraine, since he was eager to offer young people in those countries a fair chance for their future as well.

Max Schaldach was not only an outstanding academic, but also excelled as an extraordinary entrepreneur throughout his professional career. He founded BIOTRONIK in Germany (1963) with subsidiaries in the United States (1973), and in Switzerland (2000), Cortronik in Germany (1969), Micro Systems Engineering in the United States (1979), and in Germany (1984). At the present time, the BIOTRONIK group has subsidiaries in many countries with a total of more than 2,300 employees. Max Schaldach felt responsible for all his employees. He was always very aware that his decisions and management skills affected their lives and professional careers. He understood his personal role in serving his companies and employees. He encouraged and inspired young people to start their own enterprise and supported them with advice and financial assistance. He became a partner and a consultant to numerous technological enterprises in many countries including Germany, the United States, Austria, Israel, Brazil, Russia, and China.

Pacemaker technology with all its interdisciplinary challenges in fields like material sciences, solid physics, electrochemistry, microelectronics, signal processing, control theory, biocompatibility, and quality management was the centre of his scientific interests and activities. He introduced important new ideas and innovations. In addition, he was also active in a broad spectrum of other areas of biomedical engineering that spanned monitoring systems, defibrillators, neurostimulators, artificial joints, stents, equipment for interventional cardiology, and heart-lung-systems. He made remarkable contributions to advances in fields such as the production technology for large-scale integrated circuits, the development of improved electrodes, primary batteries, titan-based housings and bonding methods. Max Schaldach was always an attentive listener to clinicians, since he was convinced that appropriate engineering solutions must be suited to specific medical problems and their requirements. The results of those activities can only be summarised through his numerous contributions as an author or co-author. He wrote more than 1,500 scientific publications and gave more than 1,400 oral presentations. He authored three books, ("*Electrotherapy of the Heart*" was translated into several languages), and 121 book chapters; he served as either editor or co-editor of many scientific journals; and organised more than 60 scientific conferences, meetings, and workshops. He was an active member of the scientific advisory board of numerous international conferences and journals; and finally, he produced more than 100 patents with worldwide validity.

Max Schaldach was a member of many national and international scientific organisations. He served on the Administrative Council, and as President of the Germany Society for Biomedical Engineering, on the Administrative Council of the International Federation for Medical and Biological Engineering, and in many other organisations. He was an expert and a frequently requested advisor for many research-funding organisations, including the German Federal Ministries. His merits have been acknowledged by numerous honors and awards. He received the German Gold Medal Industrial Award on three occasions, as well as medals for excellent scientific performances in Italy, Brazil, and in China. In 1998, he was distinguished with the Cardiostim Award for cardiac electrotherapy in Nice. He was especially proud of the Year 2000 Career Achievement Award that he received from the Engineering in Medicine and Biology Society of the IEEE. He was also inducted into the College of Fellows of the American Institute of Medical and Biological Engineering for his pioneering contributions in biomedical engineering. The numerous honors he received during his career included: the Most Distinguished Federal Cross of Merit from the Federal Republic of Germany, honorary membership in the "Deutsche Gesellschaft für Biomedizinische Technik" (German Society for Biomedical Engineering), membership in the national scientific academies of Lithuania

and Russia, and distinguished honorary membership of the Russian Academy of Sciences. He received the Dr med. h.c. from the Medical Academy of Lithuania and from the Medical Academy of St. Petersburg, and the Dr h.c. from the Lomonosov University of Moscow. The State School of Medicine, São José do Rio Preto - São Paulo (Brazil), and Lomonosov University of Moscow appointed him as Professor. In 2000, he was distinguished by the City of Erlangen for recognition of his merits and service to the community.

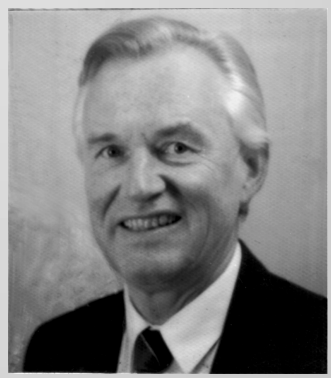
Max Schaldach was a prolific linguist and spoke more than six foreign languages. He was familiar with ancient Greek from his school days. As a result of his broad humanistic education, he was open-minded and receptive to all foreign cultures and customs. His insights into the history and civilizations of countries, such as Greece, Israel, and South America were astounding. He loved classical music and particularly enjoyed the music of Johann Sebastian Bach. Reading books, especially poetry, provided him with intellectual and spiritual regeneration. The humanities, notably philosophy and ethics, and the human sciences were fields of special interest to him. He was an ardent admirer of the physicist Andrei D. Sakharov, who received the 1975 Nobel Peace Prize in recognition of his fight for human rights.

Max Schaldach was like a sparkling diamond with many different fascinating facets. Discussions with him were challenging and stimulating, since he was always searching for the essentials. He combined the scientific creativity of a visionary with the analytical self-control of an engineer and the critical competence of an expert in economics. He was a wonderful, warm-hearted, and reliable friend.

He will be missed tremendously not only by his family, but also by friends, colleagues, and the world community of biomedical engineering.

Prof. Dr. Helmut Hutten
Graz, Austria

Romuald Plaszczynski



On 3 February 2001, we lost a dear friend, a collaborator, past-president and founder of the Section 27-SEE (Société des Electriciens et des Electroniciens), devoted to biomedical engineering. We shall all miss him.

Romuald devoted more than 30 years of his life to the field of medical and biological engineering.

He left his country at the age of 27. He was initially backed by his country men and the Polish church. He continued his studies at the Faculty of Medicine and at the Faculty of Sciences. For his research in France he obtained a Doctorate in Neurophysiology.

He worked as a research and development engineer for biomedical electronic companies such as Cotelec-Thomson, Thomson Medical-Telco, Thomson-CGR. His inventing activities led to more than 20 patents.

His numerous and precious contacts at national and international level allowed him to play an important role in associations such as SEE and IFMBE/USA (International Federation for Medical and Biological Engineering). He shared his expertise with doctors, scientists, engineers and teachers. His talent in organising international conferences such as Biocapt 75 and Biosigma 78 will not be forgotten. Those two international conferences were landmarks in the life of Section 27-SEE.

In the course of his life, Romuald organised many seminars and national conferences. After being the President of

Section 27-SEE for many years, he occupied the position of General Secretary of Club CFTBM (Club Français des Techniques Bio-Médicales). He acted as the liaison between Club CFTBM of SEE and IFMBE.

At a ceremony at the SEE in 1981, his contribution to the biomedical field was recognised and he received the national order of merit.

Our thoughts go to his wife, Barbara. We also know how proud he was of the success of his four sons as engineers.

Romuald's enthusiasm, energy, availability and above all his kindness will be sorely missed.

Astrid Gautier-Levine and Didier Geiger

Conference Report Tenth International Conference on Biomedical Engineering

The Tenth ICBME held from 6-9 December 2000, was a significant event for the Asia Pacific region. It was jointly organised by the faculties of Engineering and Medicine, National University of Singapore and the Biomedical Engineering Society (Singapore). Over 300 papers were presented during the four-day conference, which enjoyed record participation with more than 450 delegates from 23 countries. It brought together multidisciplinary researchers to discuss the latest breakthroughs in biomedical engineering research and education. The conference comprised 6 plenary lectures 23 symposia and 33 world-renowned experts who were invited to give keynote addresses in each symposium. Delegates were challenged by the many excellent presentations.

The conference provided a forum for papers on the latest research work from countries all over the world. Subject areas include:

- Artificial Organs
- Medical Imaging
- Bioinformatics
- Micro Biomedical Engrg Systems
- Biomaterials
- Physiological Control
- Biomechanics
- Prosthetics & Orthotics
- Biomedical Instrumentation
- Rehabilitation Engineering
- Cardiovascular Bioengineering
- Respiratory Mechanics
- Computational Biomedical Engineering Robotics in Surgery
- Electrical Stimulation
- Tissue Engineering
- Dental Bioengineering

Worth mentioning were the plenary lectures: Challenges of Medical and Biological Engineering in the 21st Century (F. Kajiya, Okayama Univ., Japan), Functional Characteristics of the Mitral Valve (A.P. Yoganathan, Georgia-Tech, USA); Graded Materials for Biomedical Applications (S. Suresh, MIT, USA); Polymeric Controlled Gene Delivery (K.W. Leong, Johns Hopkins, USA); Biomedical Engineering in the Next Millennium (J. Fouke, Michigan Univ, USA); The Potential of Human Embryonic Stem Cells in the Treatment of Human Disease by Tissue Engineering (A. Bongso, National University of Singapore).

There were three key pre-conference workshops: (i) Tissue Engineering (ii) Cardiovascular Bioengineering and (iii) Renal Bioengineering (special participation by International Faculty of Artificial Organs, INFA) and all were well attended with an average of 18 participants.

Numerous awards were given out – 5 Young investigators award and 21 outstanding paper awards. For the social function delegates had a wonderful time enjoying the sea breezes and the magnificent yacht club at Marina Bay, some also attended the evening with animals at the unforgettable night safari.

S.H. Teo, Conference Chairman

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SAMB Disbanded Diverging Alliances in Biomedical Engineering

The UK Liaison Committee for Sciences Allied to Medicine and Biology (SAMB) was disbanded as at 31 December 2000 by consensual agreement of its 22 member societies. The Calendar of Meetings sent out to members three times per year ceased publication.

The desirability of liaison between the life and physical sciences was foreseen following informal discussions at the Institution of Electrical Engineers while reviewing the contributions presented at the First International Conference on Medical Electronics held in Paris 1958, consequent upon the initiative of Dr. Vladimir Zvorykin. Following the 1959 conference the Biological Engineering Society (BES) was formed. Further discussions from interested societies to consider a single national group resulted in the formation of SAMB in October 1965 on the initiative of members of the BES. The major engineering institutions, the three science institutes, the main royal medical colleges, life science societies and several health care societies were sometime members. It ran eight conferences and eleven one-day meetings on health care and biomedical engineering topics. During the first decade meetings were well attended; but in latter years participation of the member societies diminished.

In the last 10 years three new liaison organisations have been formed.

1. The UK Focus for Biomedical Engineering (UKFBE) was set up in 1993 under the auspices of Royal Academy of Engineering to monitor policy developments and activities in biomedical engineering. Membership includes mainly engineering institutions and government research councils broadly related to health care.

2. The UK Life Sciences Committee (UKLSC) was formed in 1997 to co-ordinate and advance the interests of the life sciences. It has 15 learned societies representing molecular, cellular and physiological sciences.

3. The Association of Institutions concerned with Medical Engineering (AIME) was inaugurated in Spring 1999. The eight members represent the major engineering institutions and physical sciences.

4. The new liaison organisations fall into two distinct categories, the UKLSC comprising biological societies, and AIME representing engineering and physical sciences. The UKFBE may be included in the second category.

Concurrent with the trend to divergence as between the representation of life and physical sciences on liaison organisations, multidisciplinary research and development is on the increase. An example is tissue engineering requiring fundamental knowledge in biology and biochemistry combined with microengineering techniques; ie it is a multidisciplinary activity. Professor W. Bonfield, a pioneer in tissue engineering, in his 1997 lecture at the Royal Academy of Engineering, “From Concept to Patient: Engineering Solutions to Medical problems”, referring to the forward progress resulting from the substantial role of the engineer in medicine said, “A precursor for such progress will be a continuing interaction between clinicians, scientists and engineers, with the establishment of interdisciplinary and multidisciplinary teams.”

The above commentary reveals a paradox, for as research and development in multidisciplinary activity increases, liaison between the life and physical sciences in the field of biomedical engineering has ceased. Can the new alliances fulfil Professor Bonfield’s observations ?

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History of SAMB

This Committee now generally known as SAMB was formed in 1965. The exchange of information afforded by membership of SAMB has achieved a greater degree of collaboration between the various organisations resulting in an increasing proportion of jointly sponsored meetings during which the combined audiences have had opportunities for fruitful discussion.

History

The life sciences have always been dependent on the physical sciences and technology. Advances in theoretical knowledge have steadily eroded subject boundaries and resulted in significant overlap; while new technologies have made possible sophisticated instruments, whose successful development and application depend on the designer and user evolving a common area of understanding.

Most of those involved in the multidisciplinary activities maintained contact with their appropriate professional organisation; but many of them formed themselves into smaller groups representing their special interests.

During the 1950s and 1960s it became apparent that meetings and conferences on similar topics were being organised independently by different bodies, often at the same time, each being unaware of the initiative of the other. Apart from wasting time and effort and bringing in small audiences, the proliferation of meetings tended to perpetuate an insular approach within an inherently co-operative endeavour.

In 1958 ten persons from Great Britain attended the First International Conference an Medical Electronics at the Nouvelle Faculté de Médécine, Paris. It was held under the aegis of the Council of International Organisations of Medical Sciences and the Rockefeller Institute for Medical Sciences, New York, consequent on the initiative of Dr Vladimir Zvorykin. Immediately after the conference, at an informal meeting at the Institution of Electrical Engineers to review its results, proposals to bring together the many workers, experts, medical practitioners and engineers, and to develop a central clearing house for exchange of information through a British National Group, were tabled. To fulfil those functions an organisation with a liaison role was envisaged to which the various royal medical colleges, engineering and science institutions would become member organisations.

In 1960 the Biological Engineering Society was formed, and affiliated to the International Federation for Medical Electronics (Medical and Biological Engineering in 1965). A UK National Committee for Medical Physics was formed in 1963 and affiliated to the International Organisation of Medical Physics formed in that year.

During the following year, about a dozen other bodies began discussing the formation of a UK Council for Medical and Biological Engineering; but before it could he put into effect a proposal was made for a single National Group to be established. Thus in October 1965 the United Kingdom Liaison Committee for Sciences Allied to Medicine and Biology came into being.

Objects

1. To provide a forum for societies and organisations interested in the application of Sciences Allied to Medicine and Biology; to meet and be aware of each others' interests and desire to collaborate; to disseminate information regarding projected meetings and to effect co-ordination between the various interested societies.

2. To take such action as may supplement the activities of the participating societies by stimulating interest in, and spreading the knowledge and development of Sciences Allied to Medicine and Biology.

3. To initiate when desirable meetings on topics of common interest to participating societies.

4. To collate information on the activities of relevant scientific societies, as well as of these of the participating societies and to circulate these to the participating societies in the form of a Calendar.

Meetings Organised by SAMB
Congresses (C) and One-Day Symposia (S).

Year	*Title*	*Type*
1968	Production and Hazards of a Hyperbaric Oxygen Environment	C
1972	Inter-Disciplinary Problems of Open Heart Surgery and After-Care	C
1975	Education & Training of Technologists in the NHS	S
1975	Scientific Aids in Hospital Diagnosis	C
1976	Standards for Safety 1978 Scientific Aids in Hospital Treatment	C
1981	Health and Safety at Work Related to Health Care	S
1983	Microprocessors in Hospital Practice	S
1987	Strict Liability for Products Utilised in Medicine and Biology	S
1990	MBIT-90, Medical and Biological Implant Technology	C
1991	Toxic and Hazardous Waste Disposal	S
1991	Achievements and Challenges	S
1992	Training in Technological Support of Clinical Services	S
1993	MBIT-93, Medical and Biological Implant Technology	C
1993	The NHS Internal Market: how has it affected you?	S
1994	Organisational and Clinical Audit	S
1996	MBIT-96, Medical and Biological Implant Technology	C
1997	Rehabilitation after Spinal Injury	S
1999	MBNT-99, Medical and Biological New Technology	C

Member Organisations of SAMB

- Association of Optometrists
- British Computer Society
- British Institute of Radiology
- British Orthoptic Society
- College of Radiographers
- Electro-Physiological Technologists Association
- The Ergonomics Society
- Institute of Measurement and Control
- Institute of Agricultural Medicine and Rehabilitation
- Institute of Physics
- Institute of Physics and Engineering in Medicine
- Institution of Chemical Engineers
- Institution of Electrical Engineers
- Institution of Mechanical Engineers
- International Society of Prosthetics and Orthotics
- Royal College of Radiologists
- School of Postgraduate Studies in Medical and Health Care
- Society of Cardiological Science and Technology
- Society for Experimental Biology
- Society of Perfusionists of Great Britain and Ireland
- The Chartered Society of Physiotherapy

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First Announcement
EMBEC'02
Second European Medical & Biological Engineering Conference
4-8 December 2002
Vienna, Austria
Advancement of Medicine and Health Care through Technology – Challenge to Biomedical Engineering in Europe

The Second EMBEC'02 follows the First EMBEC'99, the successful first joint meeting of the European constituents of the International Federation for Medical and Biological Engineering (IFMBE) with nearly 1100 participants from 55 countries.

EMBEC'02 takes place under the patronage of (preliminary list)

- International Union for Physical and Engineering Sciences in Medicine (IUPESM)
- International Federation for Biomedical Engineering (IFMBE)
- Austrian Society for Biomedical Engineering (ÖGBMT)

EMBEC'02 will again be hosted by Vienna, with its history of culture, music, architecture and science. Owing to its unique position in the heart of Europe, Vienna is the perfect place to welcome the world- wide biomedical engineering community.

The pre-Christmas season in Vienna is possibly the most attractive time of the year. The city is alive with special Christmas markets, the shops are decorated and full of weird and wonderful gifts. You are advised to book your hotel in advance, since many visitors will come to Vienna to witness the pre-Christmas celebrations.

Scientific Program

All BME relevant topics will be considered in the scientific program. The following list is not intended to be exhaustive: – artificial organs – bioimpedance – bionics – biomaterials – biomechanics – biosignal processing – biotelemetry – cardiovascular mechanics – clinical engineering – computers in medicine – education – electrotherapy – expert systems in medicine – functional electrostimulation – gait and motion analysis – home care technology – image processing – intelligent instrumentation – lasers in medicine – medical imaging – medical informatics – medical robotics – minimally invasive surgery – modelling and simulation – physiological system analysis – rehabilitation technology – elemedicine – tissue engineering

Distinguished experts will present the most recent state of science and technology. The European IFMBE constituents have been invited to use the EMBEC'02 as a platform for demonstrating their special activities. Presentations may be either in oral or poster form. The main program will be supplemented by special sessions, workshops, and tutorials.

Important Dates

Second Announcement: *Nov. 01, 2001*

Submission of Abstracts: *March 15, 2002*

Notification of Acceptance: *June 15, 2002*

Submission of Full Papers: *Sept. 15, 2002*

Scientific Secretariat

For all correspondence concerning the scientific part of EMBEC'02 please contact:

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Conference Secretariat

For all correspondence concerning registration, hotel accommodation and payment, please contact the PCO:

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Website: http://www.embec.org.

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bioceramics14.com

14th International Symposium on Ceramics in Medicine
14-17 November 2001
Hilton Hotel / Casino Spa
Palm Springs, California

The Program Committee on the 14th International Society for Ceramics in Medicine (ICSM) requests abstracts on a wide variety of ceramic themes of immediate interest for biological applications (see list below). Please note that you can download abstract forms from this website. You need not be a member of ICSM to submit an abstract to Bioceramics-14.

- Bioactive Glass Ceramics
- CaPO4 Preparation, Properties, Coatings
- CaPO4 Cements
- Composite Ceramics
- Cellular Response to Ceramics
- Tissue Response to Ceramics
- Tissue Engineering
- Dental Ceramics
- Orthopaedic Ceramics
- Medical Applications of Ceramics

The deadline for abstract submission is Monday 23 April 2001. Abstract forms must be received in the Bioceramics-14 office by this date.

For more information please contact

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Medical Innovation in the Changing Healthcare Marketplace 14-15 June 2001 2100 C Street, NW, Washington, DC

The National Academies, Board on Science, Technology and Economic Policy in association with the Institute of Medicine is arranging a two-day conference.

In an environment of renewed concern about rising healthcare costs, where can public policy stimulate or remove disincentives to the development, adoption and diffusion of high-value innovation in medical diagnostics, therapeutics, and devices? This conference aims to examine the drivers of medical innovation with a view to highlighting possible public policy levers to stimulate the development and diffusion of new medical technology. It will also address two key aspects of the debate about the relationship between technology and healthcare costs – whether new medical technology is driving up health care costs and the equally important issue of whether new medical technology is bringing more benefits.

Several sessions of the conference will consider these issues in the context of two areas of medical practice—cardiovascular disease, where there has been significant therapeutic success, and metastatic melanoma, where therapeutic progress has been much more limited.

This event will be webcast, and a link to the audio stream will be available the day of the webcast at http://www.nationalacademies.org/. There is no charge for this event and you may register online at http://nationalacademies.org/med_innovations

Speakers include:

- David Lawrence, CEO, Kaiser Permenante
- Thomas Fogarty, Partner, Three Arch Partners
- Kathy Behrens, Managing Partner, RS Investment Management
- Edward Penhoet, Dean, School of Public Health, University of California, Berkeley
- Steven Rosenberg, Chief of Surgery, National Cancer Institute

For further information, please contact Craig Schultz at cschultz@nas.edu

IFMBE Seeks Editor of IFMBE News

IFMBE is looking for an editor of its newsletter, IFMBE News. The newsletter is published bi-monthly. Starting from this year it appears only in electronic format both on the web (http://ifmbe-news.iee.org) and as a PDF file. The latter is distributed to the members of IFMBE affiliate societies by email through the secretariats of the respective member societies. Peter Peregrinus Ltd publishes the newsletter.

We hope to be able to fill this position starting from the beginning of 2002.

Applications and nominations for this position are invited. These should be sent together with a CV to the chairman of the Federation Journal Committee, Professor Bonfield.

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News from the EU Commission Life-Like Perception Systems Initiative

The objective of the Life-Like Perception Systems Initiative is to promote research into integrated perception-response systems that take their inspiration from the solutions adopted by living systems. A comprehensive stock-taking report written by a team of researchers can now be downloaded from (http://www.cordis.lu/ist/fetbi.htm). It is a snapshot of research and research teams in Europe related to the LPS initiative.

The first info day for this initiative was held in Brussels on 2 April with more than 50 attendees from 15 countries. The presentations (from the plenary session and from participants looking for partners) are available at (http://www.cordis.lu/ist/fetbi-br.htm) and they have also been added to the partner pages (http://www.cordis.lu/ist/fetbi-pp.htm).

The call for proposals of the new FET proactive initiative on 'Life-Like Perception Systems' is approaching. It will probably be issued on 15 June, the deadline of the proposals being probably 26 October 2001. To highlight the opening a second information day will be organised on 18 June 2001 in Brussels. This event is free of charge and open to all those interested in the initiative. It will give insight into the goals and scope of the initiative, serve as a place to discuss research ideas with experts and to find partners for the consortium.

For registration to the information day see http://www.cordis.lu/ist/fetbi-if.htm.

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Book Review

Title: Signals and Systems in Biomedical Engineering: Signal Processing and Physiological Systems Modeling
Author: Suresh R. Devasahayam
Topics in Biomedical Engineering
International Book Series, edited by Evangelia Micheli-Tzanakou
ISBN: 0-306-46391-1
Publisher: Kluwer Academic / Plenum publishers
List price: 79.50 USD (prices for rest of the world available at www.wkap.com)

Finding the right material as a basis for a course on biomedical signal processing' due to the inherent interdisciplinary character of the subject and structuring the contents so that the course is both engaging for one student and not too taxing for the other is not a trivial task when the audience consists of people with an engineering background as well as people with a medical background. The author has taken up this challenge on the basis of his experience in teaching a course on Signal Processing and Physiological Systems Modeling.

The book consist of 15 chapters, which can be roughly divided into three groups; the first five chapters deal with the basics of signal processing and discuss the tools at hand for signal processing and system modelling, Chapters 6 to 8 treat some more advanced topics, while Chapters 9 to 15 concentrate on the use of the tools for modelling, mainly on the basis of real-life examples and experimental data. Each chapter concludes with a number of exercises. There are both traditional 'paper-and-pencil' problems as well as more elaborate 'programming exercises', in which students are encouraged to solve cases by developing their own computer programs (in the computer language/environment of their own choice). The book comes with a CD-ROM from which a program, 'SIGSYS', can be installed which illustrates applications of several of the key concepts discussed in the book, viz.

'convolution', 'sampling and quantisation', 'spectral analysis', and 'wavelet analysis' in an interactive manner.

Overall, the contents of the book make a solid impression; clearly this book is the result of evolution of lecture notes used over the years into a more definite form and not a hastily put-together collection of chapters. It is easy to see that the author has carefully planned the level of complexity of the text to be interesting for engineering as well as medical-oriented students.

The book is very clearly written, and apart from some minor misprints in Chapter 2, I did not encounter errors in the equations or inconsistencies in the text. The author goes through great lengths to explain all subjects in quite some detail, and some of the earlier parts of the book might read as a bit going into too much detail (e.g. the elaborate treatments of e.g. Fourier analysis and Laplace transformations) when considering that those parts are then meant especially for students with a medical background (engineering students will most likely have gained the knowledge about those subjects already in their earlier courses). However, the chapters never get boring thanks to the many examples, and the 'detailed treatment' is never too difficult.

The 'basic tools' techniques explained in those early chapters all will be used in the later chapters in real-life case examples, so there is an immediate reward for studying them. In that respect, Chapter 6, which concentrates on time-frequency methods and especially on wavelets, is a bit different in the sense that there is no real 'application example-case chapter' available in the book that uses wavelets. Having said that, the treatment of wavelets as introductory text in Chapter 6 is by far the best I have come across in the five years or so that I have been desperately looking for a suitable introductory text on wavelets to present to my students.

The same praise needs to go to Chapter 7 which although quite short, gives a very clear introduction to the subject of estimating signals in noise.

The later chapters, each covering real-life examples of modelling, are entertaining, although maybe slightly biased towards the area of the author's personal interests; muscle physiology and electrophysiology. This never becomes a problem though, there are more than enough different cases to choose from.

The software on the CD is a very simple to install stand-alone program with subsections that demonstrate what happens when we process biomedical signals (example data files are included, and your own can be added) using e.g. spectrum analysis, or wavelets and play with the parameters. Given its straightforwardness, it is very suitable for quick demonstrations during the course lectures. However, also outside the lectures it can be useful – there are also (almost hidden, in the help file) very worthwhile exercises/ assignments included for students to experiment with the methods. The CD would probably have benefited from a bit more 'advertising' and documentation within the book itself.

All in all, I would say that to my opinion this book would be a very good choice as material for a biomedical signal processing/ modelling course. It has a solid description of the basic methods, an excellent introduction to wavelets, and more than enough entertaining examples of real-life applications to choose from.

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Keeping Step Scientific and Technical Research for Visually Impaired People

The RNIB Scientific Research Unit has produced a range of publications to help designers understand the needs of visually impaired people and to show what could be done to make new systems easier to use. This new publication brings together much of this work to give an overview of the current state of the art in this important area.

New technologies have opened exciting possibilities for making life easier for people with a serious sight problem. RNIB has been active in identifying these possibilities and encouraging the development of appropriate systems and products.

The popular image of a blind person is of someone, who is young, totally blind, reads Braille, musical, happy, loves animals and has bionic hearing. However reality is somewhat different - the visually impaired population is far from homogeneous and has very varied needs and aspirations. This report describes some of the scientific and technological research, which has been done to alleviate their problems, with special emphasis on projects in which the RNIB Scientific Research Unit has been involved.

Technological developments have helped visually impaired people, but they have also resulted in extra problems. For instance the increasing use of terminals with visual displays, such as cash dispensers and mobile phones, mean that access to services may be restricted for those who cannot read the visual display.

The general approach has been to encourage designers to incorporate features in the standard product, which will help people with disabilities. If this is insufficient then to incorporate a standard method of connecting the user's own device, which has an appropriate user interface. But if neither of these approaches provides a satisfactory solution, then special equipment will be needed.

Inclusive design is not just adding an extra feature to a product to meet the perceived needs of a disabled user. It is a process, like quality, which has to be considered at every stage in developing a new product or service. This requires companies to promote a culture of inclusion within their organisation. It also requires detailed technical guidelines on the design features required by the various groups of disabled users.

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The IOC Olympic Program

by Benno M. Nigg

The joint program of the IOC Medical Commission and Pfizer has four components dealing with movement, exercise and sport:

- IOC Olympic Prize
- IOC World Congress
- IOC Olympic Academy of Science
- IOC Research Projects

This article focuses on the World Congress.

Issues related to movement, exercise and sport are typically interdisciplinary in nature; a single-discipline approach is rarely productive. To come up with answers and to make progress, teams of experts from many different backgrounds must work together. Yet most scientific congresses related to movement, exercise and sport are discipline-oriented. The goal of the ***IOC World Congress*** (www.iocworldcongress.org) is to provide an interdisciplinary, topic-related forum for scientists from many fields to meet and to exchange ideas. The IOC World Congress unites scientists from the biological, physical, behavioral and medical disciplines for the purpose of sharing their knowledge with an international audience of physicians, therapists, scientists, and coaches. Past Congresses have proved to be valuable launching pads for advances in the science related to movement, exercise and sport.

As a rule, the IOC World Congress takes place in the host city for the Olympic Games a few months before the Games. The next one, the sixth since its initiation, will take place in Salt Lake City September 16-21, 2001. Its theme is ***Science and Medicine of Human Movement.*** The various sessions will deal with questions related to movement, exercise and sport, general physical activity, healthy lifestyles and the prevention, treatment, and rehabilitation of injuries. There will also be a special session (Wednesday) highlighting technology related to the study of movement, exercise and sport and the application of the internet in relation to these issues.

The Fifth IOC World Congress in Sydney in 1999 was very successful and attracted about 1200 participants. It is expected that the Sixth Congress in Salt Lake City will attract even more participants.

The Congress Program includes over 25 keynote and invited speakers. The keynote lectures of the IOC Congress include several highlights such as:

- Dr John O. Holloszy, University of Washington, St. Louis, USA

  Recipient of 2000 IOC Olympic Prize:

  Establishing the Relationship between Mitochondria, Exercise and Health.

- Dr Jim Sallis, San Diego State University, San Diego, USA

  Keynote for the Behavioral Section:

  Motivating Youth to Exercise: A Public Health Perspective.
- Dr Ben Levine, Institute for Exercise and Env. Medicine, Dallas, USA and Dr Jim Stray-Gundersen, Norges Idrettschøgskole, Oslo, Norway

  Keynote for the Biological Section:

  Living High, Training Low: Development of the Paradigm.
- Dr Erich Müller, University of Salzburg, Austria

  Keynote for the Physical Section:

  Biomechanics and Training of Elite Skiers.
- Dr Andrew Pipe, University of Ottawa, Canada

  Keynote for the Medical Section:

  Responsible Medicine in Amateur Sports
- Dr Jos de Koning, University of Amsterdam, Netherlands

  Keynote for the Technology Section:

  Ideas to Practice Using New Technology and Science to Derive Practical Applications to Help Coaches/Athletes Improve Performance.

  Further invited speakers and symposia organisers include:

Ackland, Tim, PhD. Australia; Baumann, Adrian, PhD, Australia; Burke, Louise, PhD. Australia; Carron, Albert, PhD, Canada; Foster, Carl, PhD, USA; Hahn, Allan, PhD, Australia; Hartfield, Brad, PhD, USA; Hay, James G. PhD, New Zealand; Heil, John, MD, USA; Johnson, Robert, J., MD, USA; Johnson, Steven C. PhD, USA; Kram, Roger, PhD, USA; McNitt-Gray, Jill, PhD, USA; Mester, Joachim, PhD, Germany; Mohr, Tom, PT, PhD, USA; Mutrie, Nanette, PhD, Scotland; Nigg, Claudio, PhD, USA; Paulos, Lonnie, MD, USA; Richardson, Bill, PhD. Canada; Rollins, Douglas E., MD, PhD, USA; Rosenberg, Thomas, MD, USA; Rundell, Ken, PhD, USA; Rusko, Heikki, PhD, Finland; Saltin, Bengt, PhD, Denmark; Steadmann, Richard, MD, USA; Stone, Mike, PhD, Scotland; Van den Bogert, Antonie, PhD, USA; Yeadon, Fred M.R. PhD, UK

Special Highlight of the Congress

The Opening Ceremony of the IOC World Congress has a very special highlight. The winner of the prestigious IOC Olympic Prize, valued at $500,000 will be announced. The prize is awarded every two years to one or more scientists for specific findings resulting from outstanding basic and/or applied research in the fields of medical, biological, physical, or psychological science ***related to human movement, exercise and/or sport.*** The Selection Committee for the IOC Olympic Prize will meet immediately before the Congress to determine the winner. This will be the fourth time the prize has been awarded.

Research Awards

Four research awards of $US2500 will be given to the best conference papers in each of the four Sections of the Congress: behavioral, biological, medical, and physical.

Closing Dinner Ceremony

The closing dinner for the IOC World Congress will be ice-side in the Utah Olympic Oval, site of the 2002 Games long track speed skating events. Musical entertainment and speed skating will make this a memorable event.

Olympic Venue Tour

Participants will tour some of the 2002 Games venues, including the Rice-Eccles Stadium, site of the opening and closing ceremonies, the Utah Olympic Park, site of the bobsleigh, luge, ski jumping and Nordic combined events and Park City (ski and snowboarding venues).

All lunches, the Olympic Venue Tour, the Opening Ceremony, and the closing ceremony are included in the registration fee making this event an excellent value.

For more information visit www.iocworldcongress.org; Telephone: (801) 212-3472; Fax: (801) 212-2440

The Sixth IOC World Congress is under the auspices of the IOC's Medical Commission and is endowed by Pfizer Inc. The Congress is endorsed by the American College of Sports Medicine (ACSM) and the Federation Internationale de Medicine du Sport (FIMS). The local organiser of the Congress is Todd Allinger, PhD.

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