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Pray For Japan





Content

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EDITORIAL

Together, We Make It Better

IFMBE NEWS is now back on track! Since our last re-inaugural issue, we received much feedback and numerous suggestions from our readers, and also heard many warm welcome-back greetings. While trying our best to provide major and interesting information from around the world, your support and advice is most welcome and very important in deciding what to do next.

The CED Chairman, Yadin David wrote in his article, "Together, we can make it better". This sentence can be adopted by many current situations. As a major communication channel between IFMBE members and its committees, we cannot enhance the content of IFMBE NEWS without your help. Medical and Biological Engineering (MBE) requires collaboration. We need to work together to make it better. Please keep on supporting us by sharing MBE information from your region. We are also engaging guest writers. If you would like to contribute an article for IFMBE NEWS, please do not hesitate to contact us at ifmbenews.tw@gmail.com.

Within this issue, we have conference reports from Europe, India and Japan, and conference information regarding APCMBE 2011, which will be held in June in Malaysia and the 5th European Conference of the IFMBE, September 14th – 18th 2011 will be held in Budapest, Hungary.

Furthermore, Depei Liu, who is Past-President of the Chinese Society of

Biomedical Engineering and also the chairman of the 2012 WORLD CONGRESS on Medical Physics and Biomedical Engineering, invites IFMBE members to attend WC 2012 in Beijing next May. IFMBE NEWS will report more on WC 2012 in future issues.

Worth mentioning in this issue is that we invited two guest writers, Professors Olof A. Lindahl and Monique Frize. Prof. Lindahl, who directs a non-profit Biomedical Engineering research institute in Sweden, gives an introduction to their institute and projects. Prof. Monique Frize, who is the Chairwoman of the IFMBE Women in MBE (WiMBE) committee, will be providing a series of articles on women in MBE topics.

Early in March 2011, Japan suffered a disaster from a huge earthquake and tsunami. Japan's society and economy were severely damaged and needs time to recover. Although, the JSMBE Society's 50th Anniversary conference needed to change venue due to the earthquake, their efforts paid off. Congratulations to the JSMBE Society on their successful 50th Anniversary Conference. Let's all pray for Japan and hope everything will come back to normal as soon as possible. Together, let's we make it better!



Kang-Ping, Lin
Editor, IFMBE News



IFMBE EXPRESS

Pray For JAPAN

Our hearts and minds are with our Japanese friends following the devastating earthquake and tsunami of 11 March 2011. With so many dead (current estimates approaching 27,000) and an estimated 250,000 people displaced from their homes, it is hard to imagine the full impact of this disaster on the Japanese people. A month later, we continue to be concerned as the radiation threat of the three damaged nuclear power plants at Fukushima remains high, with estimates of decades and billions of dollars required to decommission the plants completely.

One website that has updated information about current conditions in Japan is the Japan Resilience System:

<http://japan.resiliencesystem.org/>

Following the disaster, there were calls to help house displaced persons.

The site Sparkrelief.org

<http://japan.sparkrelief.org/> is helping by allowing persons to offer housing to those in need, or if one is displaced to find housing. It appears that offers to house displaced persons have come from all over the world. If you can help, please contact the relief agencies.

As it so happens, the Japanese Society for Medical and Biological Engineering will be celebrating their 50th Annual Conference from April 29 - May 1, 2011, Tokyo, Japan

<http://jsmbe50.umin.ne.jp/english.html>.

I wish them the greatest success for a wonderful meeting.



Herbert F. Voigt, Ph.D.
President, IFMBE





Call for Nominations: IFMBE and IUPESM AWARDS

The IFMBE Otto Schmitt Award and the Vladimir K. Zworykin Award will be presented on the occasion of the World Congress on Medical Physics and Biomedical Engineering to be held in May 2012 in Beijing, China. The IFMBE Awards Committee is responsible for the selection of two awardees to be honored. The IFMBE Otto Schmitt Award recognizes a Biomedical Engineer for exceptional contributions to the advancement of the field of medical and biological engineering while the Vladimir K. Zworykin Award recognizes a Biomedical Engineer for outstanding research contributions in the field of medical and biological engineering.

In addition, IUPESM Awards of Merit will be presented to a recognized Medical Physicist and a Biomedical Engineer who have established distinguished careers in Medical Physics and Biomedical Engineering, respectively. IFMBE is, through its Awards Committee, responsible for the selection of the Biomedical Engineer to be awarded.

In order to submit a nomination, please send a Curriculum Vitae together with a proposal pointing out in detail nominee's contributions with special attention to the established criteria (IFMBE Policies and Procedures, Section 4 Awards and Recognition).

The nominations should be sent by 25 May 2011 to the Chairman of the IFMBE Awards Committee, Prof. Dr. Sc. Ratko Magjarevic at ratko.magjarevic@fer.hr



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2012 WORLD CONGRES

Medical Physics and Biomedical Engineering in Beijing

Dear IFMBE members,

May I have the honor to invite you for a Journey of the World Congress on Medical Physics and Biomedical Engineering in Beijing, China from May 26 to 31, 2012.

Promoting Human Health is an everlasting and dynamic topic that is driven by the change of disease spectrum, economic and social development and personalized health management. The progress on medical physics and biomedical engineering provided a powerful backup to realization of personalized medicine and translational medicine based on trans-disciplinary and inter-disciplinary collaboration as well as information sharing. The triennial World Congress may function as a platform for these activities.

During the World Congress 2012, the participants will share the latest information on global health challenges, advanced technologies and innovative applications. It will be a window to show participants the up-to-date picture of research, education development and industrial contribution in the field of medical physics and biomedical engineering. Beijing has hundreds year history as the capital of China and is the key city with academic and economic functions. She is also a hub of international/domestic traffic communication. I am sure that you may have a wonderful experience of visiting this city during the Congress.

You can find more information at <http://www.wc2012.org/>

I look forward to meeting you in Beijing, 2012.

Depei Liu, Ph.D
Congress President





Minutes of the IFMBE Ethics Working Group Committee Meeting

April 1, 2011

The newly formed IFMBE Ethics Working Group met for the 1st time on April 1st, 2011, immediately before the start of the 6th International Conference on Ethical Issues in Biomedical Engineering in Brooklyn, New York. The meeting was attended by Dr. Subrata Saha, the committee chair, Dr. Herbert Voigt, the committee vice-chair and the IFMBE President, Dr. Ana Lita, Director of Appignani Bioethics Center and a member of the committee, Dr. Pamela Saha of the State University of New York Downstate Medical Center and Dr. Shankar Krishnan, IFMBE Treasurer. The committee was charged and agreed to carry out the following actions during next one year:

- 1) To form a Code of Ethics for Medical and Biological Engineers and circulate it amongst member societies;
- 2) Encourage formation of an Ethics Committee for all national Biomedical Engineering or Bioengineering societies;
- 3) Organize an Ethics session at the next World Congress on Medical Physics and Biomedical Engineering;
- 4) Help to organize Ethics sessions at other national and international Medical and Biological Engineering conferences.

The committee also voted to accept Dr. Daniel Vallero of Duke University as a member of the committee. Dr. Vallero has authored several books including: 1) Environmental Biotechnology: A System Approach and 2) Biomedical Ethics for Engineers, both published by Academic Press



FROM THE SOCIETY

Clinical Engineering Division (CED) Collaboration Programs - Together we can make it better

Yadin David, CED Chairman

We share this planet and feel the tremendous impact from the events around us. Loss of life is terrible and recent events are just incomprehensible. When one part of the world is so affected, lives in other are not the same. Recent world events and the magnitude of the tragedy demonstrate the power around and the limitations surrounding us. It is bold, what has taken place in the Middle East when individuals committed to improve their lives through combining their voices, while facing unimaginable odds. Yet, they were able to bring a change. In a different way, extreme emotions have been experienced immediately after the tragic devastation from the 9.0 magnitude earthquake in Japan. People helping people, stretching hands to the survivors and lending assistance for Japan toward overcoming and rebuilding. People working together can make it better.

As our lives are impacted by nature and man-made events, it is clear that the community needs our skills to have access to safe, quality and appropriate health services, now more than ever before. I am convinced that when clinical engineers around the world combine their efforts, pool their skills and commit to pursue professional development - their

community experiences positive change in the safety and quality of their healthcare services. At the same time, better recognition for the clinical engineering contributions is beginning to take place. To promote this, the Clinical Engineering Division (CED) is focusing on providing the platform, tools for communication between health technology managers around the world. CED is making knowledge exchange between us easier, faster, reaching further, and more relevant. CED has been working together with (1) American College of Clinical Engineering (ACCE), (2) Association of Italian Clinical Engineering (AIIC), (3) Medical Engineering Society of Chinese Medical Association, and the (4) World Health Organization (WHO) to facilitate opportunities for building needed competency for healthcare technology managers. I selected two specific examples to share with you at this column. I believe you will find them exciting to read as much as we did writing.



Dr. Yadin David, Chairman CED at WHO
headquarters in Geneva, Switzerland



1. Clinical Engineering Division (CED) Collaborating with WHO

The World Health Assembly of WHO, in May 2007, passed the first resolution on health technologies (WHA 60.29) setting an unprecedented focus on health technologies. Health technologies were recognized as essential for achievement of health-related millennium development goals and medical devices in particular play a fundamental role in strengthening national health systems and in improving health outcomes. One of WHO's strategic objectives is to "ensure improved access to quality and use of medical products and technologies" and together with the World Assembly resolution formed the basis for Global Initiative on Health Technologies (GIHT) supported by funding from Bill & Melinda Gates Foundation. As part of this strategy WHO embarked on organizing the First Global Forum on Medical Devices in Bangkok, Thailand in September 2010. Leaders from IFMBE, including the CED, worked with the department of Essential Health Technologies of WHO and others on the development of the program and participated in its presentations/discussions. To help meet the objectives, WHO have contracted with IFMBE/Clinical Engineering Division (CED) to compile glossary of medical devices terms that are specifically used in health technology management by clinical engineers. The use of common terminology and their global harmonization will move us together closer to our goal. The outcome of this work will promote global relationships and reflect well on the expertise that CED offers and about the commitment its members make to help colleagues reach better and safer health services.

2. Clinical Engineering Master Program from Pavia, Italy

The second example is about the progress achieved when stake-holders have been working together on building academic clinical engineering program in Italy. This Master course program originates from a close collaboration between the Faculty of Engineering, the Faculty of Medicine of the University and the Clinical Engineering Department of San Matteo Hospital in Pavia, Italy.

It is an innovative course, aiming at the formation of professional specialists and health technology managers in the field of Clinical Engineering, able to supervise Clinical Engineering Departments, organizing and coordinating operational units of clinical engineers and technical staff.

The program lessons are structured in one academic year, accounting for 60 ECTS (European credits - Italian CFU) with lessons, practical training, thesis and auxiliary activities. Main subject areas are: Hospital and Clinical Information Systems, Medical Instrumentation for Functional Explorations, Bio imaging Instrumentation, Clinical Chemistry Laboratory, Hospital Safety and Risk Management, Health Planning, Health Organization, Health Management. Lessons are lectured with the assistance of 4x foreign teachers: Yadin David (International Federation of Medical and Biological Engineering), Renaldo Battista (Montreal, Faculty of Medicine), Jennifer Jackson (American College of Clinical Engineering), and Adriana Velasquez (World Health Organization).





In addition, the faculty consists of 20x teachers from the University of Pavia (Engineering, Medicine, Mathematics and Science, Economics) and 30x teachers, representing Clinical Engineers, Physicians, Healthcare Managers and Service and Manufacturing companies. Entry requirements are: Master's Degree in Biomedical Engineering, Master's Degree in Engineering. (for more info mail to: p.lago@smatteo.pv.it). I hope to receive information and report about additional similar programs from around the world in future columns.

Finally, I would like to let you know that the Clinical Engineering Division (CED) will organize special session on: Disaster preparedness for Health Technology Management at the 5th European Conference of the International Federation for Medical and Biological Engineering (IFMBE) schedule for September 16, 2011, in the beautiful city of Budapest, Hungary. I hope to see all of you there.

Remember, together we can make it better.

Biomed and APCMBE, 2011

Hua-Nong TING (PhD)
Department of Biomedical Engineering
Faculty of Engineering, University of Malaya



The Department of Biomedical Engineering, University of Malaya, Malaysia is going to organize the 5th Kuala Lumpur International Conference on Biomedical Engineering (BIOMED 2011) on 21st to 23rd June 2011 at the Berjaya Times Square Hotel, Kuala Lumpur, Malaysia. This conference will be held in conjunction with the 8th Asian Pacific Conference on Medical and Biological Engineering (APCMBE 2011).

The technical papers accepted at BIOMED 2011 cover the following areas or topics: artificial organs, biomedical instrumentation, bioengineering education, BioMEMs, bionanotechnology, clinical engineering, biosignal processing, medical imaging, bioinformatics, prosthetics and orthotics, biomaterials, rehabilitation engineering, biomechanics, physiological modelling, biomechatronics, and tissue engineering.

The conference program highlights five plenary talks by five prominent researchers/academics of different areas: Professor Dr. Michael R. Neuman (Michigan Technological University, Michigan, USA),





Plenary Speakers

Professor Dr. Walter Herzog (University of Calgary, Canada), Professor Dr. Xiao-Ping Li (National University of Singapore, Singapore), Professor Dr. Alberto Avolio (Macquarie University, Sydney, Australia), and Professor Dr. Arthur F.T. Mak (The Hong Kong Polytechnic University, Hong Kong). Besides that, Biomed 2011 also invites Prof. Dr. James Goh (National University of Singapore, Singapore), Prof. Dr. Ichiro Sakuma (University of Tokyo, Japan) and Prof. Dan Bader (University of Southampton, UK) to give invited talks. More than 200 technical papers are accepted, with the majority of participants are international delegates.

The conference also features three conference tutorial sessions on 20th June 2011, which are to be held at Balai Ungku Aziz, University of Malaya, Malaysia. The topics include "Measurement of Biopotentials" by Prof. Michael R. Neuman, "Biomechanics of Body Support Interfaces" by Prof. Arthur F.T. Mak, and "The Electrical Field of the Brain, EEG Source, Localization, and Neural Stimulation" by Prof. Dr. Xiao-Ping Li).

Participants to BIOMED 2011 will be awarded with 12 Continuing Professional Development (CPD) points by the Board of Engineers, Malaysia. Further information about BIOMED 2011 can be found at <http://www.biomed2011.um.edu.my>. We look forward to seeing your participation at BIOMED 2011 and APCMBE 2011.



Prof. Dr. Micahel R. Neuman



Prof. Dr. Walter Herzog



Prof. Dr. Xiao-Ping Li



Prof. Dr. Alberto Avolio



Prof. Dr. Arthur F.T. Mak



Curricula Reformation and Harmonisation in the field of Biomedical Engineering in Europe

Nicolas Pallikarakis
BITU Dept of Medical Physics
University of Patras, Greece

The CRH-BME project – Curricula Reformation and Harmonisation in the field of Biomedical Engineering (Project Number: 144537-TEMPUS-2008-GR-JPCR) – is a Joint Project within the TEMPUS IV program, involving 17 Institutions from EU and 6 Institutions from Partner Countries coordinated by the University of Patras, Greece.

Its main objective is to contribute in the harmonisation and update of existing curricula in the field of Biomedical Engineering in Europe, in order to meet recent and future developments in the area, address new emerging interdisciplinary domains, which appear as a result of the Research & Development progress, and respond to the Biomedical Engineering job market demands. The proposed generic Biomedical Engineering programs will assist participating Institutions to restructure their existing programs in full compliance with the Bologna Declaration and the ECTS and especially those from EU Partner countries that are in the initial stage of their educational system reformation. Currently, the CRH-BME project is running its third and final year of implementation. The first project objective was a Review of the Biomedical Engineering education programs in Europe. Collection of information was performed from all over Europe by means of questionnaires.



***CRH-BME project consortium –
Kick off meeting, April 2009, Patras, Greece***

The study covered 46 countries and identified that in 40 out of them Biomedical Engineering study programs are already running. Approximately 150 Universities across Europe offer in total 300 BME programs, distributed as following: 82 Undergraduate programs offering BSc degree, and 218 Postgraduate programs, from which 158 offer MSc degree and 60 offer PhD degree. The results reveal that Biomedical Engineering programs are experiencing rapid growth after the year 2000 and especially during the last five years. This leads to an increased number of Biomedical Engineers available today on the market and this is expected to play an important role in meeting the existing and forecasted needs in the BME field. The proposed generic program for BME education as well as a guideline document for the implementation of a quality Assurance System will be available soon.





Concerning the forthcoming project events, the next 5th General Assembly Meeting will take place at the University of Oulu, Finland, 19-21 May 2011. Furthermore, in September 2011 a Special Session on Education in BME organised by the CRH-BME project will take

place during the 5th European Conference of IFMBE, MBEC 2011, Budapest, Hungary.

For more information, please contact Prof. Nicolas Pallikarakis nipa@upatras.gr or Dr. Zhivko Bliznakov jivko@upatras.gr or visit the project web-site: www.crhbme.upatras.gr

BME AROUND THE WORLD

GREEK SOCIETY FOR BIOMEDICAL ENGINEERING news : MEDICON 2010 was successfully held in Greece

Nicolas Pallikarakis
Chairs of MEDICON 2010

After 21 years the Regional but also traditional Mediterranean IFBME Conference on Medical and Biological Engineering was once again hosted in Greece, this time in the Porto Carras resort in Chalkidiki. The 12th MEDICON conference was held between 27 and 30 May, 2010. The conference was organized by the Hellenic Society for Biomedical Engineering, in cooperation with the Medical School at the Aristotle University of Thessaloniki, and Medical School at the University of Patras. The formal conference opening was done on Friday morning (28th of May), after a keynote lecture on the "Global Aspects and Developments in Biomedical Engineering applied to Health and Life Care: Pushes and Pulls" , by Prof. Gunter Rau, Helmholtz-Institute for Biomedical Engineering, RWTH-Aachen University, Germany. After the participant welcome by the MEDICON 2010 Co-chairs, Profs. Nicolas

Pallikarakis and Panos Bamidis, and several other addresses, the conference was addressed and officially opened by Prof. Herbert F. Voigt, the President of IFMBE.



The conference attracted over 360 participants, and encompassed two satellite events, the 7th European Symposium on Biomedical Engineering (ESBME) and the 3rd Panhellenic Conference on Biomedical Technology. The conference accommodated some 150 oral and some 158 poster presentations – all selectively drawn through a meticulous reviewing process from a pool of over 378 submissions – of which some 90 submissions were candidates for the IFMBE Young Investigator Award! The conference included 9 plenary invited lectures (6 distinguished keynote speeches and 3 invited Editors-sessions), which together with all papers above comprised a 4 day event of some 38 scientific sessions. Six (6) special sessions and another 6 IFBME official meetings, together with another 6 social/cultural events took place.



The scientific part of the conference also included the following keynote lectures:

■ **Yadin David**, "Clinical Engineering Competency and Certification", Biomedical Engineering Consultants LLC, Houston, Texas, USA.

■ **Pascal Verdonck**, "Towards a patient-specific vascular access for hemodialysis patients", Institute Biomedical Technology, Ghent University, Ghent, Belgium.

■ **Gunter Rau**, "Global Aspects and Developments in Biomedical Engineering applied to Health and Life Care: Pushes and Pulls", Helmholtz-Institute for Biomedical Engineering, RWTH-Aachen University, Germany.

■ **Rana el Kaliouby**, "Affective Computing: Taking Clinical Research out of the Lab", MIT Media Lab, USA.

■ **Mark Hawley**, "Clinical applications of Speech Technology", University of Sheffield, UK.

■ **Georgios Sakas**, "Interventional Closed Loop: a Taxonomy Framework for Medical Procedures", Fraunhofer Institute for Computer Graphics (IGD), Germany.

Presentations were organised in three parallel tracks. The topics covered by the conference were truly diverse ranging over all aspects of medical and biological engineering. More specifically, the programme included the following thematic

tracks:

- Medical Devices & Instrumentation (4 sessions)
- Biomedical Imaging (3 sessions)
- Clinical Engineering & Safety (2 sessions)
- Education (1 sessions)
- Biosignal processing (5 sessions)
- E-health (2 sessions)
- General Track (6 sessions)

In addition, there were four special sessions organized within the main programme:

- BME and MP Education: Current trends in Europe.
- A workshop on Embedded Systems in Biomedicine.
- A Workshop on Web-based Applications in Health Care & Biomedicine.
- Women In Engineering.

The competition for IFMBE Young Investigator Award was open to all active participants of the conference younger than 35 years and received 90 contributions. The ten finalist papers were:

- Koen Van Canneyt, Francesca Giudici, Patrick Segers and Pascal Verdonck. Assessment of a patient-specific silicon model of the human arterial forearm
- Ville Jalkanen and Olof A. Lindahl. Hand-held resonance sensor instrument for soft tissue stiffness measurements – a first study on biological tissue in vitro
- Danilo B. Melges, Antonio Mauricio F. L. Miranda de Sá and Antonio Fernando





Catelli Infantosi. Ordinary Coherence vs Multiple Coherence: a somatosensory evoked response detection investigation

- José Alba Martínez, Macarena Trujillo Guillén, Ramón Blasco Gimenez and Enrique Berjano Zanón. Computer Modeling to Study the Dynamic Response of the Temperature Control Loop in RF Cardiac Ablation.
- Jakob Oblak, Imre Cikajlo, Thierry Keller, Joel Perry, Jan Veneman and Zlatko Matjačić. The Role of Viscous Damping on Quality of Haptic Interaction in Upper Limb Rehabilitation Robot: A Simulation Study .
- Alan Jovic and Nikola Bogunovic. Random Forest-Based Classification of Heart Rate Variability Signals by Using Combinations of Linear and Nonlinear Features (3rd prize).
- Daniel Strohmeier, Andreas Halbleib, Maciej Gratkowski and Jens Haueisen. The Epsilon-Skew-Normal dictionary for the decomposition of single- and multichannel biomedical recordings using Matching Pursuit algorithms.
- Patrique Fiedler, Stephan Brodkorb, Carlos Fonseca, Filipe Vaz, Frank Zanolow and Jens Haueisen. Novel TiN-based dry EEG electrodes: Influence of electrode shape and number on contact impedance and signal quality.

- Evdokimos Konstantinidis, Christos Frantzidis, Christos Papadelis, Costas Pappas and Panagiotis Bamidis. WADEDA: A Wearable Affective Device with On-Chip Signal Processing Capabilities for measuring ElectroDermal Activity (1st prize).
- P Petrantonakis and Leontios Hadjileontiadis. Frontal EEG Asymmetry and Affective States: A Multidimensional Directed Information Approach (2nd prize).

All in all, the picturesque surroundings of the conference resort truly left us with little doubt that our guests of MEDICON 2010 conference spent a few enjoyable, and interesting days in Chalkidiki and that the conference was a successful meeting from both scientific and social point of view. More details are available at the conference home page <http://www.medicon2010.org/>.



International Clinical Engineering Workshop – India February 20 – 25, 2011, College of Engineering, Pune

Niranjan D. Khambete

The overall aim of the workshop was to improve healthcare in India by ensuring that medical devices are appropriate, functional and safe. More specific aims were to:

- Highlight the urgent need for high level training and certification for clinical engineers in hospitals across India.
- Highlight importance of safe use of Medical Devices and thus eliminate unintended harm to patients.
- Formulate the constitution of the Clinical Engineering Council of India to be established as a wing of the Biomedical Engineering Society of India for Certification of Clinical Engineers.
- Provide a common platform to discuss important challenges faced by Clinical Engineers in India, and identify possible ways to move forward.
- Send recommendations to the Central and State Governments.

The International Clinical Engineering Workshop, was organized by the College of Engineering (COEP), Pune and Sree Chitra Tirunal Institute for Medical Sciences and Technology (SCTIMST), Trivandrum. This

was the second of the series of Workshops first launched in Thiruvananthapuram in October 2009. Academic Partners were the Armed Forces Medical College (AFMC), Pune, and three leading members of the rapidly growing healthcare sector of the country, Fortis Healthcare Ltd, Max Healthcare Institute, and Deenanath Mangeshkar Hospital and Research Centre, Pune. The Workshop was coordinated by Dr Niranjan Khambete of SCTIMST and Mr Uttam Chaskar of COEP.

This Workshop was inaugurated by Dr Arun Jamkar, Vice Chancellor, Maharashtra University of Health Sciences. A highlight was the release of low priced Indian edition by Elsevier India of the book titled Medical Devices: Use and Safety by Bertil Jacobson and Alan Murray. This edition was released by Dr Sanjay Oak, Director Medical Education and Major Hospitals, Dean and Professor of Paediatric Surgery, Seth GS Medical College and KEM Hospitals, Mumbai, in the presence of Professor Alan Murray, Newcastle University, UK. Also present were Professor Brian Brown, Professor Emeritus, University of Sheffield, UK; Brigadier Pawan Kapoor, Professor and Head of Hospital Management, AFMC; Dr Uma Nambiar, CEO and Zonal Director, Fortis Healthcare Private Limited; Dr Sharad Agarkhedkar, President, Indian.



Medical Association (Pune Chapter); and Professor Anil Sahasrabudhe, Director, COEP.

The Workshop included training modules in Clinical Engineering Practice, to improve knowledge, skill and competence in essential areas. To ensure that the training was relevant, participants also included hospital administrators, managers, clinicians, academic and teaching faculty, students, NGO representatives and industry personnel.

Experts and professionals from the UK and India served as faculty to the Workshop and their talks covered equipment procurement, planning and financial management, medical device safety, medical device regulation, innovation in healthcare technology, IT in health care, quality management and accreditation of hospitals and Clinical Engineering training and certification.



Professor Alan Murray and Ms Victoria Gerrard with some student participants at the Workshop

Another highlight of the Workshop was the presentation (through internet) of Ms Adriana Velazquez Berumen, Coordinator of Diagnostic Imaging and Medical Devices, Essential Health Technologies Division at WHO. She informed the participants about WHO's efforts aimed at promoting Clinical Engineering, medical device safety and medical device development worldwide and especially in developing countries.

The workshop was judged to be highly relevant, with active interaction between all participants throughout. There were strong calls for the next workshop.



Prof. Brown speaking at the inauguration of the Workshop.

Also seen (seated from the right) are Dr. Khambete, Dr. Nambiar, Brig. Kapoor, Prof. Sahasrabudhe and Dr. Jamkar(9)



The JSMBE 50th Conference Report

Ichiro Sakuma

The 50th annual conference of the Japanese Society for Medical and Biological Engineering was held at Tokyo Denki University's Kanda campus in Tokyo from April 29th to May 1st. The president of the conference was Professor Takeyoshi Dohi, Department of Mechano-Informatics, Graduate School of Information Science and Technology, The University of Tokyo. Many academic conferences scheduled during April in Japan were cancelled or postponed due to the recent devastating earthquake and tsunami that hit Tohoku area (north eastern area of Japan). However, we decided that the conference should be held as scheduled since BME research activities should be continued to solve many difficulties that Japan is facing.

We had many difficulties in preparing the conference. We still experience shortage of electric power and have to reduce electric power consumption. The transportation systems in some areas have not been recovered to normal level of operation. Thanks to the support from



Professor Dohi (left) and Professor Hashizume (right). Prof Hashizume will be the president of JSMBE2012

all over the world, life in Tokyo has recovered to be almost normal although the people in Tohoku area are still severely suffering from many difficulties after the huge natural disasters and subsequent nuclear power plant problems. The radiation dose rate in Tokyo area and most of the areas in Japan recovered to normal levels (Recent monitoring results are found at the following web site: <http://www.mext.go.jp/english/incident/1303959.htm>). We sincerely express our appreciation for supports by the people in the world. One of major impacts of the last earthquake on preparation for the conference was that we had to change conference venue. The original venue, The University of Tokyo, Hongo campus is used as evacuation area for people in case of large natural disasters such as large earthquakes. Therefore, it is not recommended to collect many people attending conferences since there are still chances of large after quakes. We moved the venue to Tokyo Denki University. The first president of JSMBE was Dr. Toshifusa Sakamoto, Professor emeritus, the University of Tokyo served as the second president of Tokyo Denki University and promoted BME researches at Tokyo Denki University. Since then, Tokyo Denki University is one of BME research centers in Japan. We decided that Tokyo Denki University's Kanda campus is the most appropriate alternative venue for the 50th anniversary conference of JSMBE.



The theme of the conference was "Breakthrough of BME for another 50 years". The number of participants was 1130. There were almost 600 scientific papers presented. We had 5 symposiums, 3 panel discussions, and 1 workshop. 8 English sessions were organized where 53 papers were presented in English. The topics of the papers covered various fields of BME such as biomedical instrumentation, medical informatics, therapeutic devices, clinical engineering, rehabilitation engineering, assistive engineering, artificial organs, biomaterials, tissue engineering, and regenerative medicine. Topic of regulatory science was also covered.

The title of the presidential lecture by Professor Takeyoshi Dohi was "My Dream of Medical Engineering". We had three plenary lectures by distinguished foreign researchers. Professor Ron Kikinis, Brigham and Women's Hospital and Harvard Medical School gave plenary lecture entitled "3D Slicer" covering topics of image guided surgery and computer assisted intervention.



Professor Kikinis Plenary Lecture



Prof Nerem Plenary lecture

Professor Robert M. Nerem, Georgia Institute of Technology/Emory Center for Regenerative Medicine gave plenary lecture entitled "Regenerative Medicine: The Past, the Present, and Unlocking the Future". Dr. Øivind Lorentsen, Rehab-Nor, Norway send us presentation on "Technology for Disabled and Elderly Persons, Potentials and Challenges" although he could not come to Tokyo. The special symposium on BME in Japan Huge disasters was organized as a late-breaking symposium. Two medical specialists in Tohoku University reported the medical and health care after the earthquakes in Tohoku district. JSMBE will continue to take action to investigate duties of BME for rebuilding safe and secure health care environment and for prevention of damages in case of possible future natural disasters in the world.

Finally, we again appreciate all the supports by the IFMBE members to realize the JSMBE 50th anniversary conference. We renew our pledge that JSMBE members will make our best to generate new scientific knowledge for advancement of BME research and development in future for safe and secure health care environment for human beings.





FEATURE COLUMN

The Centre for Biomedical Engineering and Physics (CMTF) boosts industrial growth in Northern Sweden

Olof A. Lindahl,
IFMBE Administrative Council member

Scientific research at the centre for biomedical engineering and physics (CMTF) has resulted in new med-tech companies in Northern Sweden. CMTF has generated growth both in academia, at the universities and in the industry in Northern Sweden. Furthermore, cooperation was built up between the 23 research projects and more than 20 established companies in the field of biomedical engineering. A company for business development of the research results from the CMTF was formed by the researchers, called CMTF Business Development Co Ltd. It has launched its first spin-off company in the autumn 2009. It has also increased the interest for commercial and entrepreneurship questions among the scientists in the centre. So far seven spin-off companies have resulted from the research in CMTF.

The process of commercialising scientific research results is well established in Northern Sweden. The CMTF was established in order to form an organisation for triple-helix cooperation between scientific research, biomedical industry and health care. The aims were to have intense co-operation with the health care industry and create an excellent milieu for growing new innovations and start spin-off companies to the benefit of the patient. Financially, the centre was funded through local support from regional foundations and the EU structural

foundation of Northern Sweden. CMTF turned over 6 million Euro during the years 2000-2007, and has a budget of 7,2 million Euro for 2008-2011.

The two northernmost universities in Sweden, Umeå University (UmU) and Luleå University of Technology (LTU) have joined forces combining the strong technical research at LTU with the strong medical/biomedical research at UmU.

The work at CMTF is organised in 23 research projects and one joint management. A company, CMTF Business Development (CMTF BD) Co. Ltd., owned by the scientific leaders and the local innovation system represented by Uminova Innovation Co. Ltd. and LTU Holding Co. Ltd., was inaugurated in 2007 to help with the business development of the scientific research results from the centre. The CMTF was established to create a strong, sustainable and virtual organisation for scientific research and business development in Northern Sweden. A further goal was to form a model for how to develop new biomedical viable spin off companies from the research results in the centre.





CMTF is organised with a board of directors assigned by the two universities, UmU and LTU. The board was chosen to give the CMTF a stable leadership and to reinsure a good cooperation in-between the two universities as well as with the industry and health care. The broad expertise collected in the board guaranteed high competency to make decisions on industrial as well as scientific matters as representatives of the users. Before joining the CMTF, all 23 research projects were evaluated by the board concerning three criteria; scientific excellence, clinical and industrial relevance and scientific research management. Approved projects could use the CMTF logotype and refer to CMTF as their research milieu. About 175 researchers and supporting staff are currently engaged. Almost all of the projects in CMTF have both scientific and industrial cooperation with international partners both outside EU, e.g. Japan and USA, and within EU, e.g. Norway, Finland and Italy.

The company CMTF BD is a part of the existing innovation system in Northern Sweden but with a special emphasis to launch the biomedical engineering research results on the commercial market. In Sweden, the scientific researchers own the rights to their patentable research

results and therefor the scientific leaders could sign over the intellectual property rights (IPR) to the company through an agreement. For identified business ideas, a contract was signed with the scientists about the sharing of future profit from the innovation, a so called incentive agreement. The construction of the CMTF BD made it possible to separate the non-profit research centre CMTF and the business facilitator CMTF BD Co Ltd.

Seven companies are sofar established from research results from CMTF (Table 1). Five of them were based on patents and one is the CMTF Business Development Co. Ltd. (CMTF BD). Since the establishment 2007 the CMTF BD has started one new company for the health care market and has 15 on-going business projects. Eleven patents have been filed from the research in CMTF.

Table 1. Ten years of work with the CMTF, the amount of spin off companies and related activities.

Year/Activity	2000-2010
Spin-off companies	7
Senior scientists	30
Sc publications	200
PhD/Lic exams	25
Graduation works	100
Projects	23
Patents	11
Workshops/conferen.	20
New employments	34
Industry cooperation	20

Twenty workshops has been arranged together with industry and established spin off companies with a mean of 60 participants (Fig 1), except for one workshop, the Nordic Baltic Conference on Biomedical Engineering and Physics, NBC2005, with 200 participants and the National Biomedical Engineering conference 2010 with 350 participants. The CMTF research network and CMTF BD have stimulated the initiation of spin-off companies in the area of biomedical engineering in Northern Sweden. This has resulted in increased growth of the biomedical engineering activities both in academia and in the industry in Northern Sweden.

If you are interested to know more about CMTF, you may connect to www.cmtf.umu.se for more information, or contact us by e-mail: info@cmtf.umu.se. In addition, from time to time we accept young researchers from abroad like PhD-students and post doc positions. They can get contact with us through info@cmtf.umu.se.



Pictures from work shops with CMTF in Umeå (up) and in Luleå (down)

Written By Professor Olof A. Lindahl, IFMBE

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Introducing the Women in Medical and Biological Engineering Committee

Prof. Monique Frize
Chair of Women in MBE committee

The committee was created in 2004 to investigate and make recommendations to the Administrative Council regarding issues and steps necessary to:

Increase the visibility and participation of women within IFMBE

- Address ways to improve the climate for women in IFMBE and the workplace
- Gather and disseminate information regarding the status of women in MBE
- The Chair for the first two terms was Maria Siebes (Netherlands). The Vice-Chair was Laura Poole-Warren (Australia); Alicia El-Haj (UK) was a member as well as Herbert Voigt (USA and IFMBE President).

The new Chair is Monique Frize, and Vice Chair remains Laura Poole-Warren. Maria and Alicia have kindly agreed to remain a member of the committee. New members are: Jennifer L. Ayers (USA), Miya Ishihara (Japan), Eleni Kaldoudi (Greece), Susana Llanusa Ruiz (Cuba). A few other persons have been invited to join and will be confirmed later when they have responded to our invitation.

When Maria Siebes' term as Chair ended in Munich (2009), she made several

recommendations which will be examined and acted on by the committee during its present term (2009-2012):

1. That the AC members and officers, the Academy, committees, especially the Nominations Committee, the Committee of National Secretaries, the Publication and Publicity Committee (PPC) be involved in activities of the WiMBE.
2. Regarding the Academy, that the program for young people be geared appropriately towards the needs of each gender.
3. The Nominations Committee should recommend qualified women for positions on the AC, its various committees, the Academy, and for awards and prizes that they would merit.
4. The WiMBE wishes to work closely with the PPC to modify the committee's profile and information on the web site. To profile women in the Newsletter, hold workshop on topics concerning women in engineering, and have some papers in MBEC on this topic.

For the term 2009-2012, the committee's plans and actions are:

1. Visibility: we need to have visibility for





women as role models for girls and young women. This can also be done by electronic means, through the web site, and outreach events for girls and young women. Our committee also needs more visibility on the web site and this has now been accomplished. We now appear in the section COMMITTEES under ORGANISATIONAL STRUCTURE.

2. Conference organisers of official IFMBE events will be provided with a guideline and expectations regarding the involvement of women in visible roles in the organizing committee, as judges for the young presenters awards, as keynote speakers, and as chairs of sessions.

3. The Newsletter now has a section for WiMBE information, profiles, etc... created by Dr. KP Lin (Chair of PPC). He has recently invited our committee to produce 2 or 4 articles for the newsletter each year.

4. Develop a database of women in biomedical engineering and sciences who could fill different roles within IFMBE.

5. Repeat the 2006 survey with the National Societies with an updated version; compile the results for future reporting. This has been sent to all Member Societies, but so far only five responses were received: Austria, Denmark, Finland, Czech Republic, and Croatia. We hope to receive many more in the coming weeks!

6. Organise workshops on gender issues at major events (Budapest, Havana, and Beijing).

7. Develop a network of contact persons from the 56 societies and ensure communications occur in both directions. This is also intended to help collect best practices and share these over the web site and Newsletter.

We owe thanks to Nicolas Pallikarakis and Panagiotis Bamidis, organizers of MEDICON 2010, for having scheduled our workshop with no competing session; they helped to advertise it, and organised a lunch for attendees. Also a big thank you to Eleni Kaldoudi for having helped with local organization and for participating in the panel. Around 45 to 50 persons attended the workshop. There were many questions and comments which made this a real success! Presenters on the panel were: Eleni Kaldoudi, Maria Siebes, and Monique Frize. Following the workshop, several persons were very interested in joining the WiMBE and we have invited them to join. Their names will be announced when we have confirmations.

Please find Biographies of the WiMBE members in IFMBE website:
<http://www.ifmbe.org/>



EVENTS

ASIA PACIFIC

BioMed2011, the 5th Kuala Lumpur International Conference on Biomedical Engineering;

June 20th to 23rd, 2011

- Kuala Lumpur, MALAYSIA

This International Conference on Biomedical Engineering (BioMed2011, is in conjunction with the 8th Asian Pacific Conference on Medical and Biological Engineering (APCMBE 2011) which will be held on the 20th to the 23rd of June 2011 in Kuala. Organized by University of Malaysia

For further information please reach the website at: www.biomed2011.um.edu.my

LATIN AMERICA

The V Latin American Congress of Biomedical Engineering;

May 16th to 21st, 2011 – Havana, Cuba

Official congress languages in the "V Latin American Congress of Biomedical Engineering" will be English, Portuguese and Spanish. For additional information please visit the official site: <http://www.claibhabana2011.sld.cu> or claibhabana2011@infomed.sld.cu



EUROPE

European Medical Physics and Engineering Conference, and UK's Institute of Physics and Engineering in Medicine (IPEM) Annual Conference;

September 1st - 3rd, 2011

- Trinity College Dublin, IRELAND

The aims of the 2011 conference are: to represent the diverse activities across Europe, develop research collaborations, and present state of the art research. Please find more information at

<http://ipem.ac.uk/ipem%5Fpublic/article.asp?id=397&did=49&aid=4399&st=&oaid=-1>

The 5th European Conference of the IFMBE; September 14th-18th, 2011
- Budapest, HUNGARY

The 5th European Conference of the International Federation for Medical and Biological Engineering will be held in Budapest, 14-18 September, 2011. Keynote lectures will be held by Herbert F. Voigt, Niilo Saranummi, Sergio Cerutti, Robert Nerem. Special sessions will be held on various topics. See the conference webpage at:

www.embec2011.com

