Happy New Year

IFMBE NEWS
International Federation of Medical and Biological Engineering
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Expecting 2012

Year of 2012 is around the corner, wish you all have a prosperous year to come.

As the same, we still keep working on gathering the latest news in the biomedical engineering field from different regions of the world. In this issue of IFMBE News, we focus on the theme of Biomedical Engineering and Medical Physics development in Europe.

We are very thankful to Prof. Paul J. Kostek who helped to contact for reporting the news of IEEE Global Humanitarian Technology Conference. Dr. Vo Van Toi also provided the promotion of the 4th International Conference on the Development of Biomedical Medical Engineering in Vietnam. Besides, Prof. Konstantina Nikita and Prof. James Lin prepared the information about MobiHealth 2011 for us. We also received a report from Mr. Akos, regarding EMBEC 2011.

Special thanks to Dr. Yadin David provided a column of the information about Clinical Engineering Division (CED) Committee, which demonstrates global clinical engineering certification; besides, we also appreciate Dr. Monique Frize and Miss Susana LLanusa for devoting the latest news about WiMBE.

Furthermore, we promote information about the 4th International Conference on the Development of Biomedical Medical Engineering in Vietnam and World Congress on Medical Physics and Biomedical Engineering of 2012. Hope each of you will check the information and keep tracking on the web sites.

In the future, hope all of you will still collaborate with us for making IFMBE News better.

Kang-Ping, Lin
Editor, IFMBE News
Tying Up Loose Ends
Well, it is autumn in New England – a time for reflecting on the year nearly gone by and for tying up loose ends. It is a time when the leaves turn from a monotonous green to a splendid array of crimson, yellow and brown. The change in color is late this year, suggesting that global warming is indeed affecting us already. It is also the autumn of my IFMBE Presidency as well, and perhaps with only 6 months left in my term, I need to begin to tie up the loose ends of the numerous initiatives I suggested to the various IFMBE Committees/Working Groups and Divisions:

Societies Committee – we changed the name from Secretary’s Committee to Societies Committee and encouraged involvement of the IFMBE Constitute Society Presidents. This is a work in progress and we further seek to position this committee in its proper place in the IFMBE structure. It is more than a committee, and it needs to be regionally organized with appropriate regional representation on the IFMBE AC.

a. I asked for the constitue societies to produce a report on the level of funding for biomedical engineering in each country represented in the IFMBE. I still believe this is an important baseline that should be documented.

b. I asked for each of the constitue societies to review and update their Code of Ethics or create one if none existed. This continues to be a goal of mine. This is also a goal of the IFMBE Bioethics Working Group.

Special Leadership Meeting Called
I have just recently called an important meeting of the IFMBE Leadership to discuss and propose structural changes to IFMBE that will insure consistent representation from the various regions of the world. We want to bring together medical and biological engineers from all over the world and also keep the chairs of our Divisions, CORAL, Asian/Pacific, and EAMBE leaders as well as the fellows of IAMBE in close communications with our AC. The meeting is planned for Feb/March 2012 in Europe.

Future Leadership
Elections for new IFMBE officers and AC members will take place at the WC 2012 in Beijing next May. The IFMBE Nominating Committee is actively seeking dedicated volunteers for the Medical and Biological Communities to stand for these positions. Please nominate outstanding, active and dedicated individuals for consideration for the office of Vice-President (President-elect), Secretary General, Treasurer and AC member (4 to be elected). Thank you for your thoughtful consideration.

WC 2012 – World Congress on Medical Physics and Biomedical Engineering
Work is well under way preparing for the WC 2012 -World Congress on Medical Physics and Biomedical Engineering- on 25 - 31 May 2012 in Beijing, China www.wc2012.org The conference themes and tracks are now set and Theme and Session Chairs are being contacted now – if you are interested in serving in such a capacity, please contact the Congress Organizers as soon as possible. The deadline for submitting an abstract has been extended to December 31st, 2011 and the early-bird registration fees have been reduced to the equivalent of $600.
Calling all General Assembly Delegates
The IFMBE General Assembly will be held during the World Congress 2012 in Beijing, China 25-31 May 2012. At this time we are asking all constituent Societies of the IFMBE to appoint its delegates to the General Assembly. This is very important for the health of the IFMBE. Please communicate delegate appointments to General Secretary James Goh.

Special WC 2012 programs
There are two special programs I have been working on for the WC 2012. The first involves creating Special Sessions on Undergraduate Student Projects regarding the development/deployment of low-cost medical devises in resource-poor nations. So far I have secured funding for 8 students to attend the WC 2012 to report on their undergraduate projects – 4 from the IFMBE, 2 from the Biomedical Engineering Society, 1 from the IEEE/EMBS and 1 from Engineering World Health. I am hoping to get additional funding for this special program from sources outside of the United States. If you have any ideas for funding, please contact me immediately!

The second WC 2012 Program I am pushing is based on the highly successful Young Faculty Networking Fellows Program started by the Asian/Pacific Rim working group of IFMBE. 4-5 Young Faculty members from these countries were identified as rising stars and provided travel support to visit the research homes of the other participants prior to attending the World Congress. Inaugurated for the WC 2006 in Seoul, Korea, this program was also successful for the WC 2009 in Munich, Germany. My goal is to establish three additional regional Young Faculty Networking Fellows Programs – in addition to the continuing Asian-Pacific Rim Program, these will include:

- a new CORAL Program for Central and South America,
- a new North American Program, and
- a new European Program.

The IFMBE is committed to providing substantial funding for these programs as long as the procedures for selecting the Fellows is acceptable, and the candidate's Society is in good standing with the IFMBE. We are very likely to have the CORAL and North American Programs in place for WC 2012.

@ifmbe_hfv

What is this? Well this is my twitter account. I believe we need to use modern communication channels to relay important information regarding your IFMBE in a timely manner. Please follow me at @ifmbe_hfv. You will get instant info about the IFMBE!

Best wishes,
Herb

Herbert F. Voigt, Ph.D.
President, IFMBE
Information of World Congress on Medical Physics and Biomedical Engineering

Registration Fee Reduced

The Congress Organizing Committee (COC) of WC2012 has reduced the registration fee by around 25% off. The updated Member Delegate Registration with Early Bird Rate is as low as USD600. More information is available at http://www.wc2012.org/registration.html.

Participation is open to everyone interested in 2012 World Congress on medical physics and biomedical engineering. Those wishing to attend the congress should register via Online System. Only registered participants are entitled to attend the scientific sessions of the Congress.

Registration Fee

Registration Fees are updated in Chinese RMB, 1USD=6.4 Chinese RMB

<table>
<thead>
<tr>
<th>ITEM</th>
<th>Early Bird Rate Before or on March 15, 2012</th>
<th>Standard Rate After March 15, 2012</th>
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<tr>
<td>Full Delegate Registration (Member)</td>
<td>3,800 (USD600)</td>
<td>4,800 (USD750)</td>
</tr>
<tr>
<td>Full Delegate Registration (Non-Member)</td>
<td>4,500 (USD700)</td>
<td>5,500 (USD850)</td>
</tr>
<tr>
<td>Student Registration</td>
<td>1,900 (USD300)</td>
<td>2,900 (USD450)</td>
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***Special Rate Registration (SRR)

The SRR rates are quoted and specified for those attendants from Low-income economies and Lower-middle-income economies (Based on the data of the World Bank http://data.worldbank.org/about/country-classifications/country-and-lending-groups).

**** Lunch Buffet needs at least 50 persons with reservation, or it will be changed into Lunch Box.

Entitlements

The Full Delegate Registration (Member and Non-Member) includes:
- Access to Opening Ceremony and Welcome Reception
- Access to Closing Ceremony
- Access to all Scientific Sessions
- Access to Exhibition
- Congress kit (Bag, badge, Program book and CD of abstracts and Proceedings, etc.)
- Coffee breaks

The Student Registration, SRR Registration (Full Delegate and Student) include:
- Access to Opening Ceremony and Welcome Reception
- Access to Closing Ceremony
- Access to all Scientific Sessions
- Access to Exhibition
- Congress kit (Bag, badge, Program book and CD of abstracts and Proceedings, etc.)
- Coffee breaks

The Accompany Person Registration entitles to the following:
- Access to Opening Ceremony and Welcome Reception
- Access to Closing Ceremony
- Beijing city tour

*Member Registration are quoted and specified for those from organizations listed as members by the IFMBE (www.ifmbe.org) and the IOMP (www.iomp.org).

**Full time students (not including postdocs) MUST provide proof of full time status when submitting registration form and payment (copy of valid student ID card or letter from affiliated institution head or program director)
How to register
You are kindly requested to make registration via online registration system. If you encounter the problem while making the online registration, you may contact secretariat at:

CICCST
Room. 416, East Hall
China Hall of Science and Technology
No. 3, Fuxing Road, Beijing 100863
E-mail: info@wc2012.org
Tel: +86-10-62174061
Fax: +86-10-62180142

Registration for Japanese Participants
Japanese participants may contact Travel Partner Co. Ltd., Japan, an official travel agency for the convenience of the participants from Japan to China, for registration and hotel reservation, visa application, international air tickets and insurance.

Ms. Yuriko Matsukawa / Ms. Yuki Shinmura / Mr. Yuji Totsuka
Travel Partners Co., Ltd.
KCM Bldg. 2F, 25-6, Hakozaki-cho, Nihombashi
Chuo-ku, Tokyo 103-0015
Tel. 03-5645-3700
Fax. 03-5645-3775
Email: chinadesk8@gold.ocn.ne.jp

Information of 4th International Conference on the Development of Biomedical Engineering in Vietnam

You are invited to participate in the 4th International Conference on the Development of Biomedical Engineering from January 8-12, 2012 in Ho Chi Minh City, Vietnam. Website: www.hcmiu.edu.vn/bme2012.

Vietnam is a dynamic country that offers an unrivaled experience to international researchers and educators. This mega-conference will be kicked off by the Regenerative Medicine Conference (Jan 8-10, 2012) with the theme “BUILDING A FACE” USING A REGENERATIVE MEDICINE APPROACH” and endorsed mainly by the Tissue Engineering and Regenerative Medicine International Society (TERMIS). It will be followed by the Computational Medicine Conference, endorsed mainly by the Computational Surgery International Network (COSINE) and the Computational Molecular Medicine of German National Funding Agency (Jan 10-12);
and the **General Biomedical Engineering Conference**, endorsed mainly by the International Federation for Medical and Biological Engineering (IFMBE) (Jan 10-12). Tutorial sessions, round-table discussions, social events and tours will also be organized.

**Conference topics include:** Regenerative Medicine and Tissue Engineering, Medical Robotics and Image guided Surgery, Modeling and Simulation, Functional Near Infrared Spectroscopy, Medical Instrumentations, E-Healthcare Technology, Nanotechnology for Healthcare and Drug Delivery, Biomedical Signal and Image Processing, Computational Molecular Medicine, Biomechanics, Healthcare for Developing Countries, Telemedicine.

**Keynote and guest speakers include:** Sylvie Testelin, U. of Amiens (France); Arthur Epstein, Ohio State U. Columbus (USA); Frederic Lesage, Ecole Polytechnique de Montreal, (Canada); Michele Parrinello, ETH-Zurich (Switzerland); Alejandro Giorgetti, U. of Verona (Italy); Maria Joao Ramos, U. of Porto, (Portugal); Riitta Surronen, Ins.of Reg. Med. Tampere (Finland); Andrew Ruys, U. of Sydney (Australia); Beom-Jin Lee, Kangwon National U. (South Korea); Qing-Feng Li, JiaoTong U. (China); Paul Salins, Bangalore (India); Swee Hin Teoh, National U. (Singapore).

**Organizers:** Stephen E. Feinberg, U. of Michigan Health System, Ann Arbor (USA); Anh Le, U. of Southern California, Los Angeles (USA); Paolo Carloni, U. of Aachen, (Germany) and Vo Van Toi, International U.-Vietnam National Universities-Ho Chi Minh City (Vietnam).

**Sponsors:**

**Email:** [bme2012@hcmiu.edu.vn](mailto:bme2012@hcmiu.edu.vn)

Vo Van Toi Professor

Conference Chair
The International Council for Science (ICSU)

Founded in 1931, the International Council for Science (www.icusu.org) is a non-governmental organization representing a global membership that includes both national scientific bodies and international scientific unions. The Biomedical Engineering community is represented in ICSU through the International Union for Physical and Engineering Sciences in Medicine (IUPESM), which was admitted to ICSU as a full member in 1999. Membership in IUPESM includes the International Federation for Medical and Biological Engineering (IFMBE) and the International Organization for Medical Physics (IOMP).

Through this international network, ICSU coordinates interdisciplinary research to address major issues, facilitates science education and capacity building. In addition, the Council actively advocates the universality of science, which implies freedom in the conduct of science, and equitable access to scientific data and information. The Principle of the Universality of Science has been embedded in the statutes of ICSU from its very early days. All Members agree to adhere to this Principle and it provides a model of equity and non-discrimination across the international science community. Because of its broad contact with thousands of scientists worldwide, ICSU is increasingly called upon to speak on behalf of the global scientific community and to act as an advisor in matters ranging from the environment to scientific ethics.

ICSU's mission is to strengthen international science for the benefit of society. Its strategy is to identify major issues of importance to science and society that no single discipline or country can address. It facilitates interaction among scientists across disciplines and from all countries, and provides independent, authoritative advice to stimulate dialogue between the scientific community and governments, civil society, and the private sector. The long-term strategic vision is for a world where science is used for the benefit of all, excellence in science is valued and scientific knowledge is effectively linked to policy making. To implement its mission, ICSU relies on its 30 scientific unions, representing scientists worldwide who give freely of their valuable time, and national science academies in more than 120 countries.

ICSU is currently implementing the final year of its first-ever strategic plan, the product of a major consultation and planning process. This new strategic approach responded to the recommendation that the organization needed to become strategic in addressing key international interdisciplinary issues that are important for science and society. It has just approved a new strategic plan during the General Assembly in Rome. One important goal of the strategic plan, which provided for a new direction of the organization and which is most relevant to our profession is "to ensure that health considerations are duly taken into account in the planning and execution of future activities by building on the relevant strengths of Scientific Unions and Interdisciplinary Bodies".
A more recent example of the mechanism used by ICSU for implementation of a new program is the establishment of an interdisciplinary program on “Integrated Research on Disaster Risk.” The aims of this initiative are to provide answers to the growing global problem of disasters and how countries can reduce the root causes of disaster risk. The program will combine diverse expertise and perspectives into one coordinated effort, drawing on the natural, socio-economic, health and engineering sciences. Whereas the program was organized and facilitated by ICSU, its program office is located in Beijing, China is supporting the program's infrastructure and staff. The program is in the process of establishing scientific and national collaborations and raising funds to support research activities. In September of this year, the General Assembly approved the establishment of a new interdisciplinary initiative on “Health and Well Being in the Changing Urban Environment: A Systems Analysis Approach.” The implementation of the initiative is about to begin with the initial steps of finding an appropriate host, establishing support and staff structure, creating an advisory board and embarking on fund raising for research. It is expected that a large number of ICSU Unions, including IUPESM, and particularly member of IFMBE, will become active partners in this initiative.

Due to its limited budget, ICSU does not have the resources to initiate major strategic initiatives. However, one mechanism by which ICSU facilitates the development of initiatives is by providing modest seed funding through its grants Program. The total annual budget for the grants program is approximately 300,000 Euros and the ceiling for a single grant is approximately 30,000 Euros. Grant proposals are competitive and are evaluated for quality, interdisciplinarity and whether they meet and support ICSU's overall objectives. Grant proposals are also assessed to determine whether the programs to be supported are likely to attract other funding sources and whether the results generated by the grants might grow into a major program.

As a rule, ICSU identifies the problem, provides seed funding and seeks other organizations and countries for collaboration and major funding. One example of a research program, which was facilitated by a small grant from ICSU is the Global Change program. In 1979 ICSU co-sponsored the first World Climate Conference, which led to the establishment in 1980 of the World Climate Research Program in partnership with the World Meteorological Organization. The Intergovernmental Oceanographic Commission of UNESCO later joined as a co-sponsor. The results of the conference, which was funded by a few thousand US dollars grew to a major research activity worldwide, involving scientists and engineers from many disciplines and from many countries with an estimated overall investment in research activities, reaching a few billion US dollars.
Dr. Jaron's re-election to the Executive Board places an IFMBE/IUPESM representative at the apex of one of the most prestigious international scientific organizations dealing with interdisciplinary global issues and representing more than 2 million scientists and engineers worldwide. (IFMBE and IOMP are represented in ICSU through IUPESM, which is one of the 30 scientific unions that are members of ICSU).

Dr. Jaron's re-election to the Executive Board of the International Council for Science (ICSU)

Dr. Dov Jaron, past president of the IFMBE was elected to a second 3-year term on the Executive Board of the International Council for Science (ICSU). He was the only individual from the previous Executive Board who was re-elected to membership on the board. There were a number of reasons that contributed to his re-election but the most critical one had to do with the new ICSU initiative on “Health and Well Being in the Changing Urban Environment: A Systems Analysis Approach”. The initiative has just been approved by the General Assembly, which was held in September in Rome. The initiative, which ICSU will be launching in the next few months, is a very ambitious interdisciplinary program that includes participation by a large number of scientific disciplines as well as other health-related entities. Dr. Jaron was responsible for heading the efforts that led to the formulation of the initiative and participated in the group that defined the science plan for it. This initiative reflects a new strategic direction for ICSU and by re-electing him, the General Assembly recognized that Dr. Jaron's continuation as member of the Executive Board is critical to the implementation of the initiative.
- CED Committee -
Towards Global Clinical Engineering Certification

For some, Clinical engineering (CE) profession is relatively a new profession but, according to the International Standard Classification of Occupations of the International Labour Organization as well as the US Department of Labor, it is part of the fastest growing community of expanding professions that make up the future healthcare work force. Apart from traditional health occupations such community also include biomedical/CE professionals. Thus, it stands to reason that their formal career path and related competencies should be demanding similar, if not the same as, demonstration of skills as those expected from career paths of other health professionals. However, despite this recent positive career-related good news, it appears that there is a slow embracement by national healthcare systems in many countries to fully integrate the CE profession. Perhaps, CE professionals need to more clearly demonstrate to policy makers and the public the benefits derived from well trained professionals who achieved and sustain mastering of the defined body of knowledge.

The Clinical Engineering Division of the International Federation for Medical and Biological Engineering (CED/IFMBE) is dedicated, among other goals, to the advancement of international guidelines for professional education, professional development and certification in CE, and to the advancement of the CE role in the institutional frameworks of healthcare policy, strategy, planning, and management worldwide.

Therefore, in 2010 the CED/IFMBE has initiated a project to examine global status of CE professional recognition that included a global survey of CE certification programs. The main purpose of this effort was to gather, analyze and synthesize all available information in order to determine the need and the model for establishing an international program for certification in CE. The main goal of the project is to provide recognition for meeting benchmarks, a certificate – as a formal document issued by a global awarding body, which records the achievements of candidate following an assessment and validation against a predefined standard.

Since some may confuse terms like accreditation, certification, licensing or registration in professional context, it may be worth highlighting that there are differences and describe them. For example, a certification is a ‘third-party attestation related to...persons’, as defined by ISO/IEC(International Organization for Standardization/International Electrotechnical Commission). Thus, certification is the process of issuing a certificate, diploma or title formally attesting that a knowledge, know-how, skills and/or competences acquired by an individual have been assessed and validated by a competent body against a predefined standard. Accreditation is a ‘third-party attestation related to a conformity assessment body conveying formal demonstration of its competence to carry out specific conformity assessment tasks' as defined by ISO/IEC. Accreditation is a process of quality assurance through which accredited status is granted, showing it has been approved by the relevant legislative or professional authorities by having met predetermined standards.
In simple words, certification is issuing the document of completion or qualification, while accreditation is like certification of the certification body, registration is recording or registering the certificates, and licensing is issuing a permission to do something that otherwise is forbidden.

Well-defined specific qualifications and experience in clinical practice are necessary requirements for those interested to actively participate in the field of CE, and such qualifications and experience should be subject to certification. The purpose of CE certification is primarily to promote and assure safe and efficient healthcare delivery worldwide through the certification process and continuing assessment of competency of professionals who support and advance patient care by applying engineering and managerial skills to healthcare technology in line with the best professional clinical practice. In that context, an e-letter on behalf of the CED/IFMBE was sent to:

2. members of the Yahoo! Group - CED Global, Clinical Engineering Division (http://health.groups.yahoo.com/group/CE DGlobal/), and
3. hard copy to all CED/IFMBE Board Members for distribution between June/October 2010. The e-letter was kindly asking recipients to try to provide as much as possible information (criteria, procedures, titles, legislation, documents, links...) on any attempted or established national or international program for certification in CE.

Further information on certification in other clinical sciences or for other professionals within that healthcare system was also requested. Then, final e-reminder was sent again in November 2010. It has estimated that survey requests were sent to approximately 200 e-mail addresses in about 50 countries.

Only a few e-mails were reported by mail server software as undeliverable. So far, information has been received from 17 countries, resulting in a survey's response rate of approximately one-third. The certification in CE appears to exist in 5 out of those 17 countries. In 2 countries there is an explicit legal framework i.e. acts on biomedical/clinical engineering, including the scheme for mandatory professional certification. In additional 3 countries the certification in clinical engineering exists on a voluntary basis.

Presently, the CED/IFMBE is exploring and discussing all aspects of the whole process of CE certification: eligibility requirements (education, practice, job content), administration, application procedure (resume, references, transcripts, fees), grandfathering (first national examining authorities), preparation (study materials, literature availability/accessibility), examination (written, oral, language-barriers), levels of certification (clinical engineer, clinical engineering expert), certificate attainment, renewal and revocation, funding, etc.
Global coordination of national or regional program for CE certification has the potential to strengthen and promote minimum level of requirements that can be administered locally by a national/regional board of examiners and adjusted to the acknowledge and respect of cultural and professional differences in the body of knowledge that is practiced by local clinical engineers in executing their day to day job. In that way, the existence of a viable and secure international CE certification program would greatly help to tread the path towards a full perception, regulation and integration of clinical engineers in healthcare communities and systems worldwide.

Finally, it is noteworthy to take a look exactly thirty years back and to remember the document entitled 'Agreement on Mutual Recognition of Qualifications for Clinical Engineers', where 22 affiliated National Societies of the IFMBE mutually agreed in 1981 to recognise any holder of the IFMBE's certificate of registration as a clinical engineer. Formally, the agreement seems to be still in place, but since certification and registration have never been made mandatory by national legislations in most of the countries, the agreement has been neglected. We believe that global CE community in the 21st century needs and deserves single global CE certification program to come into life. Let us know what do you think?

Submitted by
Mario Medvedec,
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Yadin David
Chairman, IFMBE/CED
Biomedical Engineering Consultants, LLC
Houston, Texas, USA
- WiM BE-
News from the WiM BE Committee (Fall 2011)

In Budapest, at EMBEC2011, our committee organized a panel: We had presentations from Maria Siebes, Eleni Kaldoudi, Kathleen Geraedst from Belgium and Monique Frize. Herbert Voigt, IFMBE president, was the moderator. As in Medicon last year, it was most gratifying to see many attendees and good questions and comments. We plan a different formula for the World Conference in Beijing. Plans are underway to organize a workshop where men and women will be discussing current obstacles for girls and women to choose a career in engineering, and strategies to increase their participation at all levels: University programs, workplaces, and associations. We hope to see many of you at this workshop that will be followed by a networking lunch. Everyone welcome!! But you must register at least 48 hours before the session in order to facilitate the planning for the workshop and the lunch.

- WiM BE-
Women in Science and Engineering – A Greek Experience

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Abstract
During the last century, women have made an impressive progress in society, education and the workplace, increasing considerably their participation in historically male-dominated fields such as business, law, and health sciences. However, in science and engineering women’s involvement has been less dramatic, and their progress in the respective workplace (especially senior posts and decision making bodies) even slower. In Greece, the cradle of science and philosophy, this situation is even more pronounced. Although Greek women are over-represented in undergraduate studies (more than the European mean), their proportions quickly decrease as one moves up the academic scale. Recent statistical surveys also indicate that this situation may not be adequately apparent, thus more publicity and possibly mainstreaming is required.
Keywords
Women in science and engineering, gender issues, Greece

I was invited as a panelist in a special session on “Women in Engineering” in the 12th Mediterranean Conference on Medical and Biological Engineering and Computing (MEDICON 2010), held under the auspices of the International Federation of Medical and Biological Engineering (IFMBE) in Chalkidiki, Greece. Considering that, in the western tradition, ancient Greek philosophy is considered as the establishment of science, the conference and session chairs, Prof. Nicolas Pallikarakis and Prof. Monique Frize respectively, thought that the Greek reality on women in science and engineering should be also presented, preferably by a Greek person. The invitation was a surprise. I’m a woman, and I consider myself a scientist in the field of biomedical engineering and informatics, and this is where my relevance to the topic of this panel would end a few months ago. So I took up the challenge in awe, and during this engagement a number of interesting findings came up, some of which I would like to share here as part of this editorial.

In the western tradition, physical philosophy and thus science are believed to have originated in ancient Greece. Although there are considerable differences (and remarkable exceptions), across the ancient Greek world of historic times women were mostly restrained at home, under the oppression of men (father, then husband), not allowed to participate in social and political activities, solely relegated to child bearing [1,5].

However, interestingly enough there was an equal men/women representation in the Greek pantheon and an indirect but significant political influence by the hetaerae, accomplished female companions who received good education and enjoyed considerable freedom. Moreover, although not many historical references exist, it is known that there was significant involvement of women in the making of philosophy and mathematics. A striking example is the Pythagorean School where women entered on an equal basis with men [1,7]. Pythagoras himself was surrounded by women. His teacher was Themistocleia, a Delphic priestess, and his wife, Theano, was a mathematician herself and the director of the School after Pythagoras' death. Three of their daughters, Damo, Myia and Arignote were also distinguished mathematicians and philosophers. Later, Pythagorean women include Periktione, who is commonly identified as Plato's mother, and the well-known mathematician and astronomer Hypatia of Alexandria in the 4th century AC.

Greece today is still mostly a patriarchal society, but there are continuous improvements on gender equality due to women's obligatory education and the overall socio-economic development. There is no specific gender mainstreaming plan, but rather a general gender equality plan. For example, an enactment of 2000 on equal gender treatment requires that a minimum of 1/3 of each gender be represented in all public decision-making bodies. On the basis of specific initiatives in Greece, today there are considerably more than 100 societies dealing with gender equality and related issues.
According to an official report from the Greek Ministry of Development [4], during the past 50 years there is an impressive increase of women's representation in the educational system and a gradual reduction of the gender gap. While in 1969-1970 women were only 31% of the total undergraduate university population, thirty years later they prevailed over men, i.e. 59% women undergraduates in 2000-2001. Women constitute almost half of the student population of the Technological Institutions and gradually start prevailing over men: 50% in 1994 and 53% in 1998. Although gender-based differences in student's participation in various scientific fields are being reduced, a difference among sciences still exists. Thus, in Humanities, Arts, Law and Social Sciences women outnumber men. Women's participation in the Natural Sciences has increased significantly, increasing from 20% in 1971 to 43% in 1997. Finally, in the field of engineering, the women's ratio increased from 6% to 25% during the same period. In 2004 Greece was one of the seven European countries (Bulgaria, Portugal, the Former Yugoslav Republic of Macedonia, Lithuania, Estonia and Romania being the other six) that had reached the point at which one third of women graduates in engineering were women [6] – a level that the European Commission had suggested as the target for 2010.

Indeed, in the year 2006 the Periktione Network, a newly founded women researchers' network under the auspices of the General Secretariat for Research and Development, Ministry of Development, conducted a statistical research among 2,200 women in 50 Greek research institutions (description and results are available from National official site for mapping women researchers in Greece, http://ereunitries.ekt.gr/ereunitries/). The majority of the responders were active in the social sciences and humanities, 34% in medical sciences, 12% in natural sciences and only 4% in engineering and technology. The survey also highlighted the fact that only 20% of the women responders were participating in management organisations, while a mere 10% had been appointed as a national representative in EU and/or national institutions. The quantitative part of the same survey showed that the majority of women (67%) do not experience direct gender discrimination in the workplace, while indirect gender discrimination was mentioned mostly by elder women researchers (33%). More than 50% of the survey participants realize that women do face more problems, and they mainly attribute these to time overload due to concurrent family commitments. Actually the majority admits that their role as active researchers interferes with their family and vice versa. For these reasons, more than 66% consider gender to be an impediment to their career advancement. However, despite all of the above issues, it is striking that the majority of survey participants report very good working relationships with their male colleagues and they are satisfied or very satisfied by their choice of profession.

This registered contentment could probably be explained by looking at the relative figures for Greece and the rest of European Union States.
As indicated by recent official European Union (EU) data [2,6] (indicative figures summarized in Table 1), the proportion of women graduates in tertiary education in Greece is around 62%, higher than the EU mean. Moreover, the proportion of women graduates in engineering, manufacturing and construction in Greece is 45%. This figure is much higher than the EU mean and actually is the maximum for the EU countries. Although the figures are not as positive for the proportion of women researchers in general, and per sector (namely, higher education, government, business), the figures for Greece are still higher than the EU mean. However, the situation is reversed when women proportions in senior research positions are considered. What is known as the “leaky pipeline”, (i.e. the fact that the proportion of women declined significantly as they moved towards higher levels in the academic and research career) is more pronounced in Greece than in the EU. For example, the statistical data shows that in 2004 only 11% women were Grade A professors in Greece as opposed to 13% EU mean (which is still a low figure).

The official national data [8] for a typical academic career (students and staff) in all Greek Universities for the year 2007 is shown in Figure 1. Women make-up 65% of graduate students, and as MSc/MA degree holders, they outnumber men. However, these figures decline rapidly as one advances to higher level positions, with women being only 18% of Grade A professors.

So where do we really stand? In recent years, women in Greece were highly and successfully involved in higher education and postgraduate studies, and they are steadily progressing following academic and research careers, even in fields traditionally dominated by men. In their research working environment, they seem to encounter a positive attitude from males and, although they face some gender related difficulties (mainly due to family commitments) they seem satisfied with their research and academic professional life.

To draw an analogy that I used during my speech in the MEDICON Conference in Chalkidiki, at first glance, it seems that Greek women researchers are pleased to be standing amidst a charming Greek scenery. Only they do not seem to be aware that right next to them stands the uniqueness of Mount Athos (The Monastic Community at the Holy Mountain in Chalkidiki, Greece, http://www.mountathos.gr/), where no women are allowed to enter. Although the status of Mount Athos is a matter of faith and religion and is not an issue in this very discussion, senior research posts is another matter altogether. The fact that women’s representation in science and engineering declines significantly in the senior scientific/academic grades and research decision-making bodies is a European and international problem, addressed regularly in a number of official reports, e.g. [2,3,6,9].
As stated in the executive summary of the WIRDEM 2008 report [9], “such a situation must inevitably mean that the individual and collective opinions of women are less likely to be voiced in policy and decision-making processes, which may lead to biased decision-making on topics of future research”. And this most likely leads to a vicious circle on women under-representation in science. The same report concludes to a number of measures that should be taken towards equality, and thus quality, in the research arena. These include the following: a sincere commitment by national governments towards equality and mandatory gender balance in decision-making bodies; transparency and meritocracy should be enhanced; decision-makers, peers and the public should be regularly updated and educated about the inequality issue and how to address it.

In conclusion, action must be taken. A good friend of mine, Adamantios Koumpis, Research Director of ALTEC S.A., when presented with these facts and issues, commented that: “Clemenceau said that ‘war is much too serious a matter to be entrusted to the military’ – in the same way, one could dare say that research is much too serious a matter to be entrusted only to the men” ...

References
Table 1. Some figures on proportions of women's participation in research for Greece as opposed to the European Union. The figures are based on statistical data as presented in [2] and [6].

<table>
<thead>
<tr>
<th></th>
<th>Greece</th>
<th>EU mean</th>
<th>EU max</th>
<th>EU min</th>
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<tr>
<td>proportion of women graduates in tertiary education (2004) [6]</td>
<td>62%</td>
<td>59%</td>
<td>77%</td>
<td>30%</td>
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<td>Cyprus</td>
<td>Bosnia &amp; H.</td>
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<tr>
<td>proportion of women graduates in engineering, manufacturing &amp; construction (2004) [6]</td>
<td>45%</td>
<td>26%</td>
<td>45%</td>
<td>13%</td>
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<td>Greece</td>
<td>The Netherlands &amp; Switzerland</td>
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<tr>
<td>proportion of female researchers (2006) [2]</td>
<td>36%</td>
<td>30%</td>
<td>49%</td>
<td>18%</td>
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<td>Lithouania</td>
<td>The Netherlands</td>
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<tr>
<td>proportion of female researchers in higher education sector (2006) [2]</td>
<td>38%</td>
<td>37%</td>
<td>51%</td>
<td>25%</td>
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<td>Latvia</td>
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<td>proportion of female researchers in the government sector (2006) [2]</td>
<td>41%</td>
<td>39%</td>
<td>64%</td>
<td>29%</td>
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<td>Malta</td>
<td>The Netherlands</td>
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<td>proportion of female researchers in the business sector (2006) [2]</td>
<td>28%</td>
<td>19%</td>
<td>41%</td>
<td>10%</td>
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<td>Romania</td>
<td>The Netherlands</td>
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<tr>
<td>proportion of women Grade A professors (2004) [6]</td>
<td>11%</td>
<td>13%</td>
<td>29%</td>
<td>8%</td>
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<td>Romania</td>
<td>Ireland</td>
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Figure 1. Proportions of men and women in a typical academic career in Greece. The data refers to total numbers of students or academic staff in all Greek Universities at the end of academic year 2006-2007 [8].
Report of EMBEC 2011

5th European IFMBE Conference
4 – 18 September, 2011, Budapest
The Conference addressed the main contribution biomedical engineers can offer to medical doctors:
Cooperation for Effective Healthcare

The Conference was popular world-wide: paper submissions came from 60 countries. 4 keynote lectures were given:
Herbert F. Voigt: Ethical Issues Facing the Medical and Biological Engineering Profession
Robert M. Nerem: Regenerative Medicine: The Past, the Present, and the Future
Sergio Cerutti: Cardiovascular Variability Signals: Assessment of Autonomic Controlling Systems with Novel Application Tools
Niilo Saranummi: Rethinking Health ICT Enabled Services to Empower People to Manage Their Health

13 invited lectures were held by outstanding experts in the field of BME: Geoffrey Chase, Olaf Dössel, Gábor Forgács, Christopher J. James, Dov Jaron, Timo Jämsä, Ratko Magjarević, Damijan Miklavčič, Marc Nyssen, Nicolas Pallikarakis, Günter Rau, Rita Stagni and Jos Vander Sloten. The “Meet-the-Editor” plenary was offered by Jos A. E. Spaan, editor-in-chief of MBEC.

227 papers were accepted for oral presentation, distributed into 42 sessions. 144 posters were displayed. The presentations covered 24 topics, the most popular were: Cardiovascular system analysis, Modeling and simulation, Biomechanics and movement analysis, Biomaterials and biosensors, Imaging and image processing, Home health monitoring. Special sessions included: Bioimpedance, Green Methods and Engineering behind the Synthesis of Biologically Active Compounds, Disaster Preparedness for Health Technology Management, CAD in Digital Radiology, Technology for Home Monitoring of Diabetic Patients, Women in BME, Curricula Reformation and Harmonisation in the Field of Biomedical Engineering.

Out of the 80 young investigator applicants (53 oral, 27 poster presentation) 11 finalists were selected. The Young Investigator Award Committee (chair: Gábor Horváth, members: Lenka Lhotska, Tomaz Jarm, Shankar Krishnan, Igor Lacković and Mart Min) gave the following honors:
Oral presentations:
1st prize (500€) Lukas Traxler (Austria)
2nd prize (350€) Utku Gülan (Switzerland)
2nd prize (350€) Pepijn Van Horssen (The Netherlands)
3rd prize (200€) Patrique Fiedler (Germany)

Book award: Jana Holmar (Estonia), Patrick Berlitz (Germany), Yoshiaki Shibasaki (Japan), María Amparo Callejón (Spain).

Poster presentations
1st prize (350€) Utako Yamamoto (Japan)
2nd prize (250€) Denis Pavliha (Slovenia)
Book award: Attila Bonyár (Hungary)

Prof. Ákos Jobbágy
Conference chair

10th International Workshop on Biomedical Engineering
DoubleTree by Hilton Resort Kos-Helona, Kos, Greece
5-7 October 2011

The 10th IEEE International Workshop on Biomedical Engineering was held in Kos, Greece, on 5-7 October, 2011 at DoubleTree by Hilton Resort Kos-Helona. The workshop was completed successfully. The overall objective of 10thBioEng was to cover the state of the art of Biomedical Engineering, targeting in the latest developments in the area.

The workshop was the tenth in a series of workshops, initiated in 1994, which has jointly been organized by the University of Patras, the University of Ioannina, the National Technical University of Athens, the University of Thessaly, the Hellenic Open University and the IEEE EMBS Greece Chapter.
This year with had the honor and pleasure the workshop to be technically co-sponsored by the Institute of Electrical and Electronics Engineers (IEEE), the Engineering in Medicine and Biology Society (EMBS) and the International Federation for Medical & Biological Engineering (IFMBE).

This year the 10th International Workshop on Biomedical Engineering was dedicated to Prof. Yannis Missirlis for his valuable contribution to the field of Biomedical Engineering.

A total of 60 papers were presented covering a wide range of topics. The 27 of them were presented by students. The papers came from 15 different countries. The workshop was organized in 11 sessions, 1 in the area of Computational and System Biology, 1 in the area of Biosensors and Instrumentation, 1 in the area of Medical Informatics, 1 in the area of Tissue Engineering and Regenerative Medicine, 2 in the area of Biomechanics, 2 in the area of Modeling of Physiological Systems and 3 in the area of Biomedical Signal and Image Processing.

The program featured three keynote presentations which have been given by Prof. Yannis Missirlis, Laboratory of Biomechanics and Biomedical Engineering, Mechanical Engineering & Aeronautics Dept., University of Patras “Engineering proper tissues and organs: the cells require ALL the appropriate signals” Prof. Nigel Lovell, Graduate School of Biomedical Engineering, University of New South Wales, UNSW Sydney NSW 2052 Australia “From Falls Prevention to Vision Restoration: Medical Device Technologies for Improving Quality of Life” Prof. Robert Allen, Professor of Biodynamics and Control, Institute of Sound and Vibration Research, University of Southampton “Clinical Assessment of the Motion of the Lumbar Spine and of Resistance to Fatigue of the Spinal Muscles”

During the conference the participants visited Asclepieion which was used as a medical centre in the ancient times and the International Hippocratic Foundation.

The organizing committee would like to cordially thank all the participants of the 10th International Workshop on Biomedical Engineering. Their attendance and the quality of their papers were the main factors contributing toward its success. We hope that everyone enjoyed both the scientific and social programs, established new friendships and partnerships and consider 10thBioEng as a memorable event that stimulated their thinking and refreshed their motivation and energy.
New research, applications and case studies were featured within the framework of MobiHealth 2011. A number of highly timely mobile communication systems that can be used for patient monitoring and healthcare delivery were presented, while a number of Information and Communication Technology (ICT) platforms were presented for chronic disease management and support of the ageing population. The field of wireless medical devices was also explored. Novel implantable and wearable sensory and monitoring devices were proposed, and the performance of protocols which are widely used for biomedical telemetry was examined. Mobile and wireless technologies for healthcare delivery and emergency, as well as ambient assistive technologies for pervasive healthcare services were also investigated.

Several open issues and technical challenges were identified within MobiHealth 2011 as key factors for revitalizing health care delivery and assisting the shift towards preventive, personalized and citizen-centered care.
Emphasis should be placed on usability, user acceptance, standardization and interoperability towards ubiquitous and pervasive healthcare delivery services. Emerging applications include lifestyle and general well-being monitoring, monitoring and management of neurodegenerative diseases, computer assisted rehabilitation and therapy and social networking of relatives and peers for monitoring of elderly.

The social program of MobiHealth 2011 featured, on 5 October 2011, a plenary talk by Prof. Stefanos Geroulanos, President of the International Hippocratic Foundation, entitled "Hippocrates, Asclepios and Asclepeia". The talk was followed by a welcome cocktail at the DoubleTree Resort by Hilton Hotel. On 6 October 2011, an excursion was organized in the Island of Kos. The tour took the participants to the Hippocratic Museum and the International Hippocratic Foundation, which are dedicated to the "Father of Medicine", Hippocrates, and ended at Asclepeion, the most important and popular ancient sight in Kos. Asclepeion was an ancient sanctuary, dedicated to Asclepius, god of healing. It was also a healing centre and the place where Hippocrates taught medicine. At Asclepeion, participants had the opportunity to watch a short retrospection in the life and science of Hippocrates, and witness the re-enactment of taking the Hippocratic Oath, a ceremony drifting back 2,500 years into antiquity. In the evening, an enjoyable Gala Dinner was organized at the DoubleTree Resort by Hilton Hotel, which comprised sumptuous and tasteful dishes under live music.

In Mobihealth 2011, best student papers were awarded based on their relevance, content, significance, originality, presentation and overall recommendation. First, second and third place winners were acknowledged with a MobiHealth 2011 Best Student Paper Certificate.

The conference organization was the combined effort of many people working as reviewers, authors, committee members and support staff and we want to thank all of them for their contribution. We hope all participants enjoyed both scientific and social events, established new friendships and partnerships and experienced Mobihealth 2011 as a memorable event that stimulated their thinking and refreshed their motivation and energy.

The MobiHealth 2011 General Chairs

Prof. James C. Lin
University of Chicago

Prof. Konstantina S. Nikita
National Technical University of Athens

The inaugural IEEE Global Humanitarian Technology Conference was held October 30-November 1st in Seattle, Washington USA. The conference jointly sponsored by the IEEE Seattle Section (ieee-seattle.org) and IEEE Region 6 (sites.ieee.org/r6) had 222 attendees from industry, NGOs, government, foundations and academe. There were 94 papers and 19 posters presented as part of the conference.

On Sunday attendees could sit through tutorials on power generation projects Affordable Energy Solutions for Developing Communities (Robin Prodmore -IEEE PES); Village-Level Renewable Energy projects for the Developing World (Michel Maupoux - Technical Director Green Empowerment) and Systems Thinking and Village Development (John Coonrod EVP The Hunger Project).

Day one opened with a welcome from Conference Chair Paul Kostek, followed by remarks from 2011 IEEE President Dr. Moshe Kam. The first conference keynote was given by Dr. Tony Marjoram (retired UNESCO STEM group leader). A panel on the good and bad issues related to technology was held with Dr. Kentaro Toyama (UC - Berkeley) and Akhtar Badshah, (Senior Director, Microsoft Community Relations).

First day sessions (both poster and presentation) addressed Power, Agriculture, Water, Health, and Data Connectivity. Panels were held on topics What Works What Doesn't and Results from IEEE Humanitarian Technology projects.

At dinner on Monday October 31st the attendees heard from Lawrence Friedl of NASA. He discussed how NASA's work in earth observation could be used to improve lives and respond to natural disasters.

Dr. Patrick Ball (VP Human Rights Benetech, Corp) was the day two opening plenary speaker and highlighted the work Benetech does and his personal experience in the use of technology in developing nations and the study/research of war crimes.
A panel was held on the role of professional engineering societies in humanitarian activities – the speakers included – Cathy Leslie (ED -Engineers Without Borders - USA), Noha ElGobashy (ED Engineers for Change) and Pete Sobel (IEEE - Director Global Development). Each discussed what their organizations are currently doing and planned projects and collaborations.

Sessions (Poster and presentations) were held addressing power, innovation, and disaster response. A panel was held on finding/developing funding resources and how entrepreneurship can play a role in bringing projects to successful completion.

The conference closed with a presentation by Dr. Mike North (Reallocate.org) on the use of technology and collaboration and IEEE 2012 President Gordon Day discussed the IEEE plans for 2012 in humanitarian technology.

The conference brought together a diverse audience and provided some excellent opportunities for sharing of work, networking, and identifying new collaboration possibilities.
The 4th International Conference on the Development of Biomedical Medical Engineering in Vietnam; January 8th-12th, 2012, Ho Chi Minh City, Vietnam

The Fourth International Conference on the Development of Biomedical Engineering in Vietnam will be held from January 8-12, 2012 in Ho Chi Minh City.

Many renowned researchers in the fields have graciously accepted our invitation to be the keynote or guest speakers. You are invited to join us either as organizers of special interest sessions or individual presenters or auditors. We accept both oral and poster presentations. Please check the Call for papers, the deadlines, format for submission of one of the 3 conferences you want to submit your works.

Please find the further information at: http://125.234.238.106/BME2012/

World Congress on Medical Physics and Biomedical Engineering; May 26th-31st, Beijing, China

The World Congress on Medical Physics and Biomedical Engineering in Beijing, China will be held from May 26 to 31, 2012.

During the World Congress 2012, participants will share the latest information on global health challenges, advanced technologies and innovative applications. It will be a window to show case up-to-date representation of research, education development and industrial contribution in the field of medical physics and biomedical engineering.

For further information, please log on: http://www.wc2012.org/index.htm