



*Harvest & Reunion*

# IFMBE NEWS

International Federation of Medical and Biological Engineering  
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## EDITORIAL

### Harvest & Reunion



Kang Ping, Lin  
NEWS EDITOR

Autumn is a season of harvest and reunion. For IFMBE, this autumn is worth celebrating!

From the president, we have received a lot of important information of IFMBE. Special attention was given to the preparation of Nominations for IFMBE governing bodies (2015-2018), and a series of Awards sponsored and co-sponsored by IFMBE.

This year, James Edward Zimmerman Award was awarded to Dr. Myriam Pannetier-Lecoeur. Congratulations!

Special thanks to the detailed report we have received from IFMBE representatives Nyssen and Nicolas Pallikarakis, we are happy to know that IFMBE participated in the 67th World Health Assembly and played an important role in WHO cooperation.

In the Feature Column of this issue, Saide Jorge Calil, chair of IFMBE Clinical Engineering Division (CED) calls to you: CED needs your participation. The chair of WiMBE Committee, Monique Frize, have organized a WiMBE corner and is excited to share their experiences with you.

According to reports from IFMBE regional organizations, such as CORL and APAWG, three regular regional conferences of IFMBE were held separately in Asia-Pacific, Europe and Latin America this fall. In addition to the exciting academic topics, over the same conference periods, IFMBE Council of Societies - the core of IFMBE also held its working meeting in each region, to convey information among IFMBE members from different points of view.

In addition, World Congress 2015 will be held in Toronto, we look forward to seeing you there!







## IFMBE EXPRESS

### From the President



Ratko Magjarević  
President, IFMBE

Dear Colleagues,

In autumn 2014, the activities of the IFMBE have reached a large peak: five international conferences have been organized practically in a row from 7th September to 30th October. The first along this line was the 6th European IFMBE Conference organized by the Croatian BME Society in the beautiful city of Dubrovnik from 7th to 11th September ([www.mbec2014-ifmbe.org](http://www.mbec2014-ifmbe.org)). At the Conference, in addition to excellent keynote speakers and regular papers (on which you can read the report from the Conference Chair Prof. Igor Lackovic in this issue of the News), there were meetings of the IFMBE Officers and both Divisions: Clinical Engineering Division and Health Technology Assessment Division, as well as the Federation Journal Committee meeting. In this latest term between the World Congresses, IFMBE has experienced a large growth of the activities of the Divisions which could be seen and felt at the European Conference. The HTA Division, in particular Profs. Leandro Pecchia and Nicolas Pallikarakis, organized the workshop "AHP in healthcare decision making and user need elicitation" which was very well received and attended. The other workshop "Certification

of clinical biomedical engineers: national and international perspectives", was organized by Dr. Mario Medvedec and Mr. James Wear.

The Officers discussed the current and future activities of the Federation and were able to express their satisfaction with their level. Special attention was given to the preparation of **Nominations for IFMBE governing bodies** in the period from June 2015 to the World Congress 2018 in Prague. Namely, the Federation is seeking nominations for:

- IFMBE Officers' positions, namely, **President-Elect, Secretary-General, and Treasurer**;
- two (2) **Administrative Council Members** to the IFMBE are open for two successive terms (2015-2018 and 2018-2021);
- **Division board members** to serve for two successive terms (2015-2018 and 2018-2021). Three (3) members for the Clinical Engineering Division (CED) and three (3) members for the Healthcare Technology Assessment Division (HTAD) are open.

Each Society may appoint any of their delegates interested in becoming IFMBE AC Members, Officers, or Division (CED or HTAD) Members to become candidates for election. In order for a Society to nominate a candidate, the society must be in good standing with the annual membership payments to IFMBE. It is expected that the nominated candidates confirm their willingness to serve in the



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proposed position and submit a position statement of potential actions and contributions to IFMBE if elected. Once the candidate has met these criteria, the candidate's information will be passed on to the IFMBE Nomination Committee for review and approval.

IFMBE will then announce to the IFMBE Constituent Societies the names of the nominated candidates with individual biography and position statement for election. The election process will be conducted during the General Assembly at the World Congress 2015 in Toronto.

All IFMBE Affiliated Societies should appoint their delegates for the meeting of the General Assembly where the elections are to take place. At the World Congress, the IFMBE delegates together with the delegates of the IOMP vote in the selection process for the World Congress venue to be held in six years after the current World Congress. Presence and commitment from each society is therefore of great value for the Federation.

The Federation is also seeking for Nominations for IFMBE sponsored and co-sponsored Awards:

- **Otto Schmitt Award** is granted to a Biomedical Engineer for exceptional leadership and seminal contributions to the advancement of medical and biological engineering.
- **Vladimir K. Zworykin Award** is granted

to a Biomedical Engineer for outstanding and innovative research contributions in the field of medical and biological engineering.

- **John A. Hopps Distinguished Service Award** is granted to a Biomedical Engineer who has made significant contributions to the professional, technical, promotional, educational and/or scientific activities of the IFMBE. This Award is going to be presented for the first time in conjunction with the World Congress 2015 in Canada, where John Hopps spent most of his life.

Also, in cooperation with the IFMBE International Academy for Medical and Biological Engineering, IAMBE, the **IFMBE/ IAMBE Early Career Awards for Young Faculty / Research Institution Members** will be presented. The Call for Nominations will be opened after the IFMBE AC meeting to be held in conjunction with the APCBME in October 2014. Note that there will be regional Calls, i.e. one Early Career Scientist will be selected from each of the four IFMBE regional organizations: North America, Latin America, Asia-Pacific Rim and, Europe and Africa.

In cooperation with IUPESM, the **IUPESM Awards of Merit** is given to an outstanding Biomedical Engineer who has participated meritoriously in national & international organizations, and has significantly influenced the development of the professions of Biomedical Engineering.



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At the World Congress for Medical Physics and Biomedical Engineering, within the paper review procedure, the **IFMBE Young Investigator Competition (YIC)** will take place and from a number of (approx. 15) finalists, papers with highest impact will be awarded. The presentation of the awards will traditionally take place at the Closing Ceremony of the Congress.

Coming back to the IFMBE conferences, the 9th International Conference on Cellular and Stem Cell Engineering was held in Aachen, Germany, from 11-13 September 2014 ([www.biomedtech.de/Index.html](http://www.biomedtech.de/Index.html)). The organizer was Prof. Gerhard Artmann, Chair of the IFMBE Working group Cell & Stem Cell Engineering and Chair of the Centre of Competence in Bioengineering. The conference evoked a large international interest and recognition. IFMBE Secretary General, Prof. Krishnan, welcomed the delegates and represented the Federation at this event.

It is my great pleasure to invite biomedical engineers around the world to participate in the regional conferences of the IFMBE to be held in October 2014:

- 9<sup>th</sup> Asian Pacific Conference on Medical and Biological Engineering, 9-12 October 2014, in Tainan, [www.conf.ncku.edu.tw/apcmbe9](http://www.conf.ncku.edu.tw/apcmbe9)
- 16<sup>th</sup> Nordic Baltic Conference, 14-16 October 2014, Goteborg, [www.nbc16-mtd10.se](http://www.nbc16-mtd10.se)
- 6<sup>th</sup> Latin American Conference on Biomedical Engineering, 28-30 October 2014, Parana, [www.claib2014.org.ar](http://www.claib2014.org.ar)

Although holding of all these conferences shows how well IFMBE covers global biomedical engineering activities, many of the speakers were not able to attend several conferences due to time constraints in their schedule. Therefore, the officers have decided to propose a more regulated time schedule for future IFMBE sponsored conferences so that in the coming years not more than one conference is held in the same season. This plan is going to be presented to the AC members at the meeting in early October and, if accepted, calls for conference organization proposals will be sent out after the meeting.

From other important items to be reported on, I would like to mention that the IFMBE continued close relations with the WHO. Profs. Marc Nyssen and Nicolas Pallikarakis presented the Federation at the World Health Assembly (WHA) in May 2014 in Geneva and established or renewed important contacts for biomedical engineers. On the 24th of May, during the 67th World Health Assembly, the WHA67.23 resolution on Health intervention and technology assessment in support of universal health coverage was approved. This resolution supports the inclusion of health technology assessment as an important part of health care system. The Resolution emphasizes that with rigorous and structured research methodology and transparent and inclusive processes, assessment of medicines, vaccines, medical devices and equipment, and health procedures, has a great potential in addressing the demand for reliable information on the safety, efficacy, quality, appropriateness, cost–



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effectiveness and efficiency dimensions of such technologies. More information can be found at [http://apps.who.int/gb/e/e\\_wha67.html](http://apps.who.int/gb/e/e_wha67.html). The 67th WHA also approved the resolution 20 “Regulatory system strengthening for medical products” which includes recommendation on medical devices regulatory system as well.

I am very glad that in the forthcoming month I

will be able to greet many of colleagues at the IFMBE regional conferences and also at the meetings of the regional Council of Societies representatives. I hope that these face to face meetings will arouse further interest for the volunteering work for our profession, biomedical engineering and for the Federation.

## James Edward Zimmerman Award 2014

**Posted on September 5, 2014**

We are pleased to announce that Dr. Myriam Pannetier-Lecoeur was awarded the “James Edward Zimmerman Award 2014” for her significant contribution to the development of a new generation of sensors with applications in the field of biomagnetism.

The award presentation was held at the recent Biomag business meeting. Dr Pannetier-Lecoeur received the plaque and cash award from Dr. John Clark (Berkeley, USA), a world renowned expert in SQUID technology and its applications.





## Report for IFMBE on the 67th World Health Assembly

Marc Nyssen and Nicolas Pallikarakis

### Preamble

The 67th World health Assembly (WHA) took place from the 19th to the 24th of May 2014 in Geneva.

It was organized in 9 Plenary Sessions, 10 Committee A and 7 Committee B meetings accompanied by more than 50 side events and special sessions. More than 1500 delegates from 194 countries and NGOs participated in this major event.

IFMBE was represented by Marc Nyssen, assisted by Nicolas Pallikarakis, who attended the summit also as a member of the Greek delegation. A special meeting with NGOs in official relations with WHO on Health Technologies, was also held on May 21st, 2014, organized by Adriana Velazquez, IFMBE's contact person within WHO.

The overall activities are summarized in the following:

### Day 1 : opening and special sessions

The opening sessions consisted of formal opening, assignment of presidency of the WHA to Roberto Morales (Cuba), followed by the speech of Adonis Georgiadis Minister of Health of Greece, who addressed the Assembly on

behalf of the EU , and finally the constitution of credentials committee and presidents/vice-presidents for the so-called "Committee A" and "Committee B" which allow working in parallel to handle the huge agenda.

The invited opening speakers: the Director of the UN and the Health Minister of Switzerland emphasized collaboration and the theme of "health issues related to climate change" of this WHA.

We got both interviewed (on TV) by the WHO press delegation, we advocate the importance of medical devices, technology assessment and the cooperation between WHO and IFMBE. The interviews will be made available via the WHO website by the end of the month.

A special technical briefing session on "Strengthening health security by implementing the International Health Regulations (IHR)" elaborated on the effective implementation of the IHR (as agreed on in WHO in 2005 and subscribed to by many (not all) member states.

Cases from recent history illustrated the IHR-consistent responses (Ebola-outbreak in Guinée équatoriale and cross-border expansion into Liberia) as presented by the Liberia's Minister





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of Health; further somewhat more theoretical endorsements were presented by high health officials from Oman (Health Minister), El Salvador, Indonesia, China (Health Minister) and USA (Health Secretary).

In the Q&A session that followed, the emphasis was put on the IHR that can be considered as an operational model at the basis of the health system. Ecuador puts strong emphasis on an efficient and “single source” fully operational, reliable information system in cases of crisis.

ADG Fukuda agreed with Norway regarding the usefulness of the IHR model, not only in case of crisis, and stressed that correct information must not be feared: this is the answer, not the burden!

In the afternoon general session, Director General Margaret Chan gave her keynote speech, with a worrying undertone: we are loosing the grip on progress:

The eradication of polio was set back, we must fear new outbreaks of new viruses.

Some parts of the world eat themselves to death while elsewhere hunger strikes Cancer cases increase, to a level never seen before.

After these pessimistic observations, she appealed for stronger actions and better worldwide cooperation.

Additionally a technical meeting on Strengthening health security by implementing the International Health Regulations was held during lunch break.

### **Evening session on “people-centered and integrated health care” (Belgian delegation).**

Presided by Dirk Cuypers (BE), the special session aimed at situating and providing evidence for people-centered and integrated health care, with participation of very different but somehow convergent contributions:

Isabelle Heymans (BE) attempted to define the concepts and illustrated them with high-level examples, concluding that between health workers a common coherent vision is absolutely essential.



IFMBE representatives Marc Nyssen (left) and Nicolas Pallikarakis (right) at WHA-67



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Kathleen Sibelius, USA Secretary of Health and Human Services cited the serious progress made in the USA in the effective use of electronic medical records as a patient-centered information source enabling teamwork of health workers, contributing to the well-being of the patient.

Marie-Paule Kieny, Assistant Director General WHO, mentioned that in this context, two strategy papers are in preparation, which will be released for public comment in July.

Margaret Chan, WHO Director General made a brief statement, stressing the importance of this subject and illustrating with the inconvenience of “repeated vertical registration of patients, in the context of single symptoms/illnesses such as malaria, HIV infections, etc”).

Adonis Georgiadis Minister of Health of Greece, illustrated the ongoing reform of the health system, based on the analysis that in Greece, far too many specialists and too few general practitioners are active in the health system.

Dr Walid Ammar, Director General, Ministry of Public Health, Lebanon highlighted the insurability of patients in Lebanon, stressing the complementary roles of public and private insurance funds.

### **Day 2: Tuesday May 20th**

Committee A begins with discussing the proposed resolution, regulating the engagement of non-state actors (NGO's etc ...) with WHO: a

framework aiming at full transparency, avoidance of mixed or conflicting interests and clearly specifying the financial matters, both donations and remunerations via common projects. Long discussions made clear the controversy regarding the need for resources, both material and human and the independence of judgment and mixed interests between WHO and other actors such as NGO's, academic institutions and also the industry.

As no consensus could be reached, Director General Margaret Chan proposed to start a working group to engage the dialog that will ultimately come to the appropriate modalities, probably to be concluded during next WHA. This proposal was adopted without objections.

### **Technical session on childbirth and mothers**

Melinda Gates and DG Margaret Chan drew great attention during the technical session, preceding the plenary meeting with a keynote of Ms. Melinda Gates regarding the importance of the Millennium Goals 4 and 5 regarding avoidable child and mother's mortality.

### **Day 3: Wednesday May 21st**

**Meeting with NGOs in official relations with WHO on Health Technologies at the « Essential Medicines and Medical Devices » department.**

#### **Participants:**

IFHE	Paul Merlevede
IFMBE	Marc Nyssen, Nicolas Pallikarakis
ISR	Jan Labuscagne, Lawrence Lau



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ISRRT Alexander Yule  
UIA Hans Eggen  
WFUMB Dieter Nürnberg

WHO Adriana Velazquez Berumen, EMP  
Maria Del Rosario Perez, PHE  
Miriam Mikhail, EMP/PHE  
Yukiko Nakatani, EMP

Ms. Adriana Velazquez elaborated on the realizations in the field of medical devices at WHO and she highlighted the ongoing and the newly planned activities: the priorities of reducing child mortality and the consequences of ageing population form the context in which WHO sees major impact of appropriate technology.

With “universal coverage” as a driver for the development agenda, the health technology assessment will obtain a prominent role, in order to keep costs reasonable and obtain maximal effectiveness, with the available resources. Therefore the HTA resolution, presently discussed and soon to be adopted is of utmost importance. When this resolution will pass, an “expert committee” will be formed.

Continuing on the “medical device technical series” books, the following new titles will soon be written: one on “human resources”, one on “regulations” and one on “de-commissioning”; contributions from experts in these fields are more than welcome.

Also planned is the book (or web publication) on hospital design in low-resources country settings; experts are requested to contribute to this book, for which a proposal of table of contents will soon be made available.

Medical devices now have a prominent place in the World Health Statistics, which can be consulted via the “Global Health Observatory” at <http://www.who.int/gho/en/>.

A side event during the lunch break addressed the subject of Regulatory systems strengthening—mobilizing people and resources.

### In the afternoon

Nicolas Pallikarakis, chairing the Health Technology Assessment Division (HTAD) of IFMBE and myself, wrote down and submitted our planned intervention on the topic of HTA, planned to take place on Friday but finally adopted on Saturday.

### Day 4 : Thursday May 22nd

#### **Technical session on: Health research for all: the role of innovation in global health in the post-2015 development framework»**

An over-filled room XII listened (in the presence of DG Margaret Chan) to a clear and sharp summary by ADG Marie-Paule Fieny, regarding the health aspects, that are part of the planned development agenda 2015-2030 (past MDG), currently under discussion.



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Another side event addressed the subject of Framing a global strategy on human resources for health.

### **Day 5: Friday May 23rd**

Committee B discussed agenda point 15 (enforcing the health systems) with sub-points, of which 15.7, the one regarding HTA.

Essential medicines: Korea: good management of prescriptions via appropriate technology to avoid double medication and other errors.

### **Technical session on “Priority setting in Universal Coverage”**

ADG Marie-Paule Kieny introduced the subject by summarizing the different tools, available through WHO, to contribute to Health and Intervention Technology Assessments.

### **Committee B about “strengthening the health system”**

Friday afternoon session on « essential medicines », « palliative care » and « HTA in the context of universal health coverage ».

### **Health intervention and technology assessment in support of universal health coverage**

Many countries currently lack the capacity to assess the merits of health technology. Health technology assessment (HTA) involves systematically evaluating the properties, effects, and/or impacts of different health technologies. Its main purpose is to inform technology-related policy-making in health care, and thus improve the uptake of cost-effective new technologies

and prevent the uptake of technologies that are of doubtful value for the health system. Wasteful spending on medicines and other technologies has been identified as a major cause of inefficiencies in health service delivery.

Following the adoption of resolution WHA67.23 on health intervention and technology assessment at the World Health Assembly, WHO urges Member States to establish national systems of



health intervention and technology assessment. Moreover WHO will support capacity-building for health technology assessment in countries, lacking the necessary resources. It will provide tools, guidance and education to prioritize health technologies and intensify networking and information exchange among countries to support priority setting.

IFMBE fully endorsed this resolution by making statements at the Executive Board meeting in January and at the WHA in May. With its HTA division, IFMBE in particular, but biomedical engineers in general will be able to play a prominent role in the elaboration of this resolution.





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### Conclusions

During this important World Health Assembly, a record number of agenda points and some 25 new resolutions were adopted and every day an excellent “technical session” highlighted key developments in the domain of “public health”.

A few important “paradigm shifts” were observed, that will probably have a major impact, the following years:

- “universal coverage” will be the “umbrella” theme for the health aspects of the post 2015 development agenda, on which the current “Millennium Development Goals” (MDG’s) will continue to be pursued.
- One now speaks of “people-centered health care and interventions” rather than “patient-centered care.”
- The “Health Technology Assessment” (HTA) was transformed to “Health Intervention and Technology Assessment” (HITA), as in resolution WHA67/23.

Although the agenda was overloaded and often needed to be adapted (read continuation the next day), all points could be handled. Yet it becomes clear that in the future, interventions will have to be limited to essential points, rather than again and again applauding the Secretariat, congratulating the President and speaking for 5 minutes, to state one’s full agreement. Discussions should focus on modifications and

improvements on proposed texts and resolutions in order to obtain full consensus rapidly.

All in all it is very rewarding to see and sense the wide international solidarity (194 countries!) leading to consensus adoption of 25 resolutions and an equivalent number of major decisions, concerning health in the world!

### Reference:

All relevant (finalized) documents produced and resolutions taken at the 67th World Health Assembly can be found via:

[http://apps.who.int/gb/e/e\\_wha67.html](http://apps.who.int/gb/e/e_wha67.html)



## REPORT FROM IFMBE: Region

### Report from Latin America: CORAL 2014-2016 Activities

Affiliated Society: Regional Council of Biomedical Engineering for Latin-America (CORAL)

Eric Laciár Leber, CORAL Secretary

#### ACTIVITY REPORT 2013-2014

**The main activities of CORAL developed during 2013-2014 were:**

1) Foundation of a CORAL administrative office in Mexico D.F. This activity was carried out during 2012 and 2013 by Prof. Emilio Sacristán Rock and Prof. Miguel Cadena Mendez (ex-president of CORAL).

2) In this year, the XXIV CORAL Administrative Committee (AdCom) meeting was celebrated in Lima (PERU) during the Peruvian Congress of Biomedical Engineering, Bioengineering, Biotechnology and Medical Physics. TUMI 2013 (May 29th to May 31st, 2013). In its agenda, was included the officers election, according the CORAL bylaws. The elected directive of CORAL for 2014-16 is integrated by:

- Prof. Guillermo Avendaño, Chile, elected in 2010, as vice-president will assume the CORAL presidency
- Prof. Eric Laciár Leber, Argentina, vice-president
- Prof. Ernesto Denis, Cuba, Secretary
- Prof. Isnardo Torres, Colombia, Treasurer
- Prof. Martha Zequera, Colombia, was re-elected as CORAL representative for IEEE/EMB R9 (Latin-America).

3) In the XXIV CORAL AdCom meeting the officers decide the creation of 8 new Committees (Events, Awards, Education, Bioethics, Industry, International Relationships, Membership and Publications) in order to assist the CORAL directive and to impulse new activities in the Region.

4) CORAL is organizing jointly with Argentinean Society of Bioengineering (SABI) the IV Latin American Conference of Biomedical Engineering (CLAIB2014), which will celebrate during October 28th to 31st 2014 in Paraná (Argentina). We expected 600 participants at the conference.

5) Also CORAL is organizing with Colombian Association of Bioengineering and Medical Electronics (ABION) the V Latin American Conference of Biomedical Engineering (CLAIB2016), which will celebrate during the year 2016 in Bucaramanga (Colombia). CORAL invite to IFMBE and EMB to celebrate their officers meeting during CLAIB2014 and CLAIB2016.

#### ACTIVITY PLAN 2014-2016

**The CORAL plans for the next two years includes:**

1) Strengthening academic programs and



## REPORT FROM IFMBE: Region

postgraduate degree in Biomedical Engineering with the support and experience of IFBME and EMB.

2) Accomplish medical devices evaluations and standards. Implementation of workshops and networking experiences.

3) Design of a young PhD researcher competition for travel to other laboratories in the region and to interchange experiences with colleagues. The main areas of Biomedical Engineering to promote in this competition are: a) Neural and Rehabilitation Engineering, b) Medical Devices and Sensors, and c) Telemedicine and Telehealth. The competition will be carried out during CLAIB2016 and an international experts committee will select the best papers in the mentioned areas. CORAL

will require IFBME to give a partial support to the awarded researchers in order to travel to other laboratories in the region and to participate in WC2015 in Toronto (Canada).

4) The regional journal proposed by IFBME to CORAL will be analyzed by the new Publication Committee of CORAL.

5) Invitation of CORAL to IFMBE and EMB to celebrate their officers' meeting during CLAIB2016. The papers of both conferences will be published in the IFBME proceedings.

6) Strengthening relationships between IFBME and EMB.



## REPORT FROM IFMBE: Region

### Report from Asian-Pacific: APAWG 2006-2015 Activities



Siew-Lok Toh,  
Secretary of APWG/IFMBE

#### (1) IFMBE-Sponsored Asian-Pacific Medical Device Design Competition 2014

The design competition is organized by the Asian-Pacific Activities Working Group of the International Federation of Medical and Biological Engineering (IFMBE) during the 9th Asian-Pacific Conference on Medical and Biological Engineering (APCMBE 2014) at National Cheng Kung University, Tainan, Taiwan, from October 9 to 12, 2014.

#### Theme of Competition

The focus of the competition is on the design of a low-cost medical device to improve healthcare in resource-scarce communities. The designs will be judged according the following four criteria:

- Innovativeness
- Potential benefit(s) to the healthcare of resource-scarce communities
- Low cost and ease of deployment
- Viability of the design and potential to reach the market

#### Eligibility

- All team members must be bona-fide students.
- The projects must have been carried out in the students' institutions
- Number of members per team can be up to 5.

#### Awards:

There will be cash prizes awarded to the 6 finalists. Each cash prize will be accompanied by an official award certificate. In addition, the registration fees for the 6 finalists will be waived by the conference organizing committee. There will be a travel grant provided by IFMBE up to a maximum amount of US\$1,500.

The following are the entries for the IFMBE-Sponsored Asian-Pacific Medical Device Design Competition 2014 to be held on 10th October 2014 during the 9th Asian-Pacific Conference on Medical and Biological Engineering (APCMBE 2014) at National Cheng Kung University, Tainan, Taiwan, from October 9 to 12, 2014.

S/N	Title of Project/ Authors
1.	<b>An Introduction to Three in One Wristband Equipment</b> Xianghui Kong, Yuecheng Wang, Runzle Li Southeast University, P. R. China
2.	<b>A Low-Cost Medical Device: NanoporousAlumina Membrane-based Biosensor forAvian Influenza Viruses (AIV) Detection</b> Weiwei Ye, Mingkiu Tsang, Chunyu Chan, Jingyu Shi, FengTian The Hong Kong Polytechnic University, Hong Kong, P.R. China
3.	<b>A Design of Successive-FFT based 4-Channel Signal Processing Chip for Fully-Implantable Middle Ear Hearing Device</b> DongWook Kim, JongHoon Kim, SeongTak Woo, KiWoong Seong, JyungHyun Lee and Jin-Ho Cho Kyungpook National University, Daegu, South Korea
4.	<b>Inertial Microfluidic Device for Malaria Parasites Enrichment</b> Andy Tay Kah Ping National University of Singapore, Singapore
5.	<b>IVIA: Intravenous Injection Assistant</b> Yu-Ren Huang, Zih-Jie Liu, and Ming-Hsien Lee National Cheng Kung University, Tainan, Taiwan





## REPORT FROM IFMBE: Region

### (2) Asia Pacific Research Networking Fellowship

Prior to the IFMBE World Congress of 2006 in Seoul, South Korea, the IFMBE Asia-Pacific Working Group mooted the Asia Pacific Research Networking Fellowship with the following aims:

1. To develop strong long-term collaboration and cooperation among member countries in the Asia Pacific region;
2. To identify and encourage greater participation of young Biomedical Engineers in IFMBE Asia-Pacific Working Group and also IFMBE at large;
3. To mentor and train young Biomedical Engineers for leadership in IFMBE Asia-Pacific Working Group and also IFMBE at large and
4. To ensure leadership renewal program is in place.

Following the success of the Asia Pacific Research Networking Fellowship in 2006 in Seoul, 2009 in Munich, Germany and 2012 in Beijing, China, the IFMBE Asia-Pacific Working Group has decided to continue this "tradition" and would like to invite each affiliated national society of the Working Group to consider nominating its member to participate in this Research Networking Fellowship in the next IFMBE World Congress which will be held in Toronto, Canada from 7<sup>th</sup> – 12<sup>th</sup> June 2015.



The IFMBE Asia-Pacific Working Group meeting with the APRNFs in Seoul, 28 Aug 2006. The 5 APRNFs are from (far right): Y Shirashi (Japan), Y P Zheng (Hong Kong), S W Tsai (Taiwan), Peter V S Lee (Singapore) and C H Kim (S Korea).



The APRNFs at the IFMBE World Congress 2009 in Munich, Germany: (circle above) Masamichi Nogawa (Japan), Hsieh Ming-Fa (Taiwan), (circle below) Jina Chang (Korea), Leo Hwa Liang (Singapore)



The APRNFs at the IFMBE World Congress 2012 in Beijing, China: Dr Hua-Nong Ting (Malaysia), Dr Chih-Kuang Yeh (Taiwan), Dr Ryoichi Nakamura (Japan), Dr Sierin Lim (Singapore)

Each of the participating national societies will select their Research Networking Fellows (RNFs) based on the criteria set by the respective society. Two weeks before each World Congress, all the RNFs will gather together in Host Country A and spend about 2-3 days there before travelling to Host Country B. They will spend about 2-3 days before proceeding to the host country for the World Congress. Each local host will arrange a program for the group to meet members of the local society and visit the BME facilities. The RNFs are required to participate in the local seminars. The RNFs are required to give presentations on their research at the IFMBE Asian



## REPORT FROM IFMBE: Region

Pacific Working Group meeting during the World Congress.

The individual RNF will have to make a report and presentation of the fellowship to the local sponsor society. As a group, they will then collectively make a report to be published in the IFMBE News.

National societies who would like to participate in hosting the RNFs and nominating their RNFs must inform the Secretary (email: [bietohsl@nus.edu.sg](mailto:bietohsl@nus.edu.sg)) by **1<sup>st</sup> November 2014**.

### **(3) 7<sup>th</sup> WACBE World Congress on Bioengineering (WACBE2015)**

The Biomedical Engineering Society (Singapore) and the Department of Biomedical Engineering, National University of Singapore will be hosting the World Association for Chinese Biomedical Engineers (WACBE) World Congress on Bioengineering 2015 which will be held in Singapore from **6<sup>th</sup> to 8<sup>th</sup> July 2015**.

The WACBE World Congress is organised biannually. The past congresses had brought together many biomedical engineers from all over the world to share their experiences and views on the future development of biomedical engineering.



The 7th WACBE World Congress on Bioengineering 2015 in Singapore will continue to offer such a networking platform for all biomedical engineers.

The Congress will cover all related areas in bioengineering and special symposia will be arranged. The Scientific Programs will include invited plenary lectures, keynote lectures, special symposia, free paper presentations and product exhibition. In addition, there will be special programs for students and accompanying persons. Details of the conference can be found from the following website: <http://www.wacbe2015.org/>

### **(4) 11<sup>th</sup> Asian Conference on Computer Aided Surgery (ACCAS 2015)**

The Biomedical Engineering Society (Singapore) and the IEEE – EMBS (Singapore Chapter) will be hosting the 11<sup>th</sup> Asian Conference on Computer Aided Surgery (ACCAS2015) in Singapore from **9<sup>th</sup> – 10<sup>th</sup> July 2015**. The Asian Conference on Computer Aided Surgery series (ACCAS) is designed to provide a venue in Asia for academic researchers, clinical scientists, surgeons and industrial partners to exchange new ideas as well as the latest development in the field of Computer Aided Surgery. Details of the conference will be made known soon.



## REPORT FROM IFMBE: Region

### Welcome to APCMBE 2014

Shyh-Hau Wang



The 9th Asian-Pacific Conference on Medical and Biological Engineering (APCMBE 2014) is to be held on October 9–12, 2014 at National Cheng Kung University (NCKU), Tainan, Taiwan. The APCMBE is a triennial Asia Pacific Conference of the International Federation for Medical and Biological Engineering (IFMBE). The general theme of APCMBE 2014 is “Biomedical Engineering Innovation Transforming the Future”. The conference program consists of opening, plenary, keynote, and invited lectures, symposia, workshops, invited sessions, oral and poster sessions, and exhibitions. Submissions to the APCMBE 2014 were numerous and resulted in about 500 poster and podium presentations. Those of full-length papers are collected in the Conference Proceedings published in IFMBE Proceedings Series.

The preparation of APCMBE 2014 started as that Taiwanese Society of Biomedical Engineering (TSBME) won the chance to hold the conference during the 7th APCMBE conference in Beijing. Since then, numerous preparatory meetings were taking place routinely and that of the related

committee was organized. The chair, co-chair, and secretary general of the conference arranged from TSBME are Professors Fong-Chin Su, Kang-Pin Lin and Shyh-Hau Wang, respectively. At the same time, the board meeting of TSBME has also decided to move forward to regularly hold the annual society meeting as an international conference on biomedical engineering. There are two motivations to initiate the annual society meeting to be an international conference. Firstly, the official journal of TSBME, Journal of Medical and Biological Engineering (JMBE), has successfully managed to be improved from EI to SCI journal. Within recent years, JMBE has not only improved its impact factor, but also currently contracted with Springer to publish the journal beginning in September, 2014. Secondly, TSBME previously has held its annual conference on biomedical engineering for more than 30 years. Beginning in 2005, those attendees to the annual conference are more than 1200 people. This is due to fast development of biomedical engineering education and medical devices industrials in Taiwan as well as that TSBME has started to issue the three such professional certificates as





## REPORT FROM IFMBE: Region

the biomedical engineer, clinical engineering, and medical equipment technician. These are the reasons for TSBME to kick off the annual BME meeting to be a fully international conference on biomedical engineering. It certainly is a great honor for TSBME to hold the annual BME meeting in conjunction with APCMBE 2014.

It is well recognized and known that biomedical engineering is going to play a crucial key in the innovation of medical devices. Therefore, the major theme of APCMBE 2014 is "Medical Device Innovation". Several symposia, workshops and invited sessions are related to this theme. Especially, to further inspire those of young students to actively develop low-cost medical devices, the first IFMBE-sponsored Asia-Pacific Innovation Competition on Medical Device Design is also going to be held. To date, there are five student

teams nominated by biomedical engineering societies in Asia-Pacific region will have their final competition in the morning of October 10, 2014. In general, APCMBE 2014 is a conference with great opportunity for exchanging ideas and knowledge of the latest research and developments in all areas within the field of biomedical engineering. The venue is at the campus of NCKU (in below) in Tainan. Furthermore, Tainan is the oldest historical city and previous capital of Taiwan. The city is full of Taiwanese culture and heritages, specifically for the famous architecture and foods. We really hope that in addition to attending the conference, all of our distinguished attendees will enjoy a wonderful vacation for a variety of beautiful beach, mountain, culture events, and foods. Welcome to Tainan and welcome to APCMBE 2014.



the venue of APCBME-2014





## REPORT FROM IFMBE: Region

### Report from Europe: MBEC 2014



Igor Lacković

Conference Chair, MBEC 2014

The 6th European Conference of the International Federation for Medical and Biological Engineering (MBEC 2014) was held in Dubrovnik, Croatia from the 7th to the 11th September 2014. This conference continued the series of well-known European IFMBE Conferences held in Budapest (2011), Antwerp (2008), Prague (2005), and two times in Vienna (2002 and 1999). MBEC 2014 was organized by the Croatian Medical and Biological Engineering Society, as the host IFMBE member society, under the sponsorship of the IFMBE. Conference Chair was Prof. Igor Lackovic, from the University of Zagreb, President of the Croatian Medical and Biological Engineering Society.

The general theme of MBEC 2014 was “Towards new horizons in biomedical engineering”. Technical program was organized in 13 themes covering all areas of biomedical engineering. The conference program benefited from the participation of nine outstanding keynote speakers for plenary sessions:

- Prof. Nitish Thakor, Johns Hopkins University; Singapore Institute for Neurotechnology (SINAPSE); Editor in Chief, Medical and Biological Engineering and Computing.

- Dr. Ilias Iakovidis, Digital Social Platforms, DG Connect, European Commission.
- Prof. Bruce C. Wheeler, University of Florida; President, IEEE EMBS.
- Prof. Damijan Miklavcic, University of Ljubljana.
- Adriana Velazquez Berumen, World Health Organization.
- Prof. Jos Vander Sloten, Katholieke Universiteit Leuven.
- Prof. Zhi-Pei Liang, University of Illinois at Urbana-Champaign.
- Prof. Maria Teresa Arredondo, Universidad Politecnica de Madrid.
- Prof. Yuan-Ting Zhang, Chinese University of Hong Kong.



In addition 18 invited sessions, special sessions, workshops and round table discussions were organized during the Conference:

- Biomimetic Organ-on-Chip Systems, organized by: Josué Sznitman and Peter Ertl
- Nanotechnology and Pulsed Electric Fields: A New Horizon for Drug Delivery, organized by: Justin Teissié and Mathias Winterhalter



## REPORT FROM IFMBE: Region

- Advanced techniques for treating deep seated tumor using Electrochemotherapy (ECT) and Irreversible Electroporation (IRE), organized by: Damijan Miklavcic and Rafael Davalos
- Bioimpedance, organized by: Orjan G. Martinsen, Andrea Robitzki and Uwe Pliquet



- Human-centered eHealth: Innovations towards empowerment, organized by: Ralf Seepold
- Unobtrusive Measurements of Human Vital Signs in Home Environment, organized by: Damjan Zazula
- Advanced Solutions for Supporting Cardiac Patients in Rehabilitation, organized by: Juan Pablo Lázaro-Ramos and Paulo de Carvalho
- Wearable and mobile technologies for independent living, organized by: Cristopher James, Panagiotis D. Bamidis, Hadas Lewy
- Workshop: Radiological Equipment Maintenance Issues, organized by: Cari Borrás
- Real-time neuroimaging of the human brain: Methods and applications, organized by: Selma Supek
- Certification of clinical biomedical engineers: national and international perspectives, organized

by: Mario Medvedec and James Wear

- AHP in healthcare decision making and user need elicitation, organized by: Leandro Pecchia and Nicolas Pallikarakis
- Biomedical Engineering Education (BME-ENA), organized by Nicolas Pallikarakis and Zhivko Bliznakov
- Disaster Preparedness Program for Health Facility's Technology Managers, organized by: Yadin David, Caridad Borrás and Fred Hosea
- Mechanical Circulatory Support (MCS) devices, organized by: Bojan Biocina
- Roundtable on Clinical Engineering, organized by: Saide Calil
- Roundtable on HTA: Healthcare Technology Assessment on Medical Devices, organized by Nicolas Pallikarakis and Leandro Pecchia



The Opening ceremony was held at the conference venue. Welcome speeches were delivered by Prof. Igor Lackovic, Conference Chair, Prof. Akos Jobbagy, Honorary Conference Chair, Prof. Herbert Voigt, IUPESM President and Prof. Ratko Magjarevic, IFMBE President



## REPORT FROM IFMBE: Region

who formally opened the Conference. Many distinguished guests attended the Opening ceremony including the representative of the Mayor of Dubrovnik and president of the City Council of Dubrovnik dr. Matija Čale Mratović, President of the EAMBES Prof. Birgit



Glasmacher, President of the IEEE EMBS Prof. Bruce C. Wheeler, President Elect of the IFMBE Prof. James C. H. Goh, IFMBE officers and AC members and many others. The opening ceremony was followed by the first plenary lecture delivered by Prof. Nitish Thakor. After his excellent lecture on neuroengineering all delegates and accompanying persons enjoyed an unforgettable sunset. A welcome reception that followed, took place in the open area of Hotel Dubrovnik Palace, between the rocks, very close to the sea. Most delicious food and selection of Croatian wines, accompanied by local live music by Klapa Subrenum created an excellent atmosphere for friendly networking of all MBEC 2014 participants.

The timetable of a full-day included a plenary session of 60 minutes, two 90 minutes time slots for four parallel technical sessions and a poster session during the morning. The same structure was followed in the afternoon. During the conference 49 oral and 3 poster sessions took place. In addition, Prof. Nitish Thakor, The Editor-in-Chief of Medical & Biological Engineering & Computing (MBEC), the official journal of the IFMBE, hosted a face-to-face Meet the editor session with the participants of the Conference. In this session, Professor Thakor explained MBEC mission, editorial process, recent submission trends, and other topics of interest to authors looking to publish their work in the Journal. In addition, Professor Thakor provided information for academicians interested in serving as Associate Editors or lead Special Issues and Topics for the journal.

Out of 373 submitted papers, 254 were accepted after peer review for publication in the conference proceedings that was published by Springer as the volume 45 in the IFMBE Proceedings series. Each paper was reviewed by at least two reviewers. The reviewing process was conducted by 214 reviewers under the supervision on the International Program Committee. Proceedings editors were Prof. Igor Lackovic and Prof. Darko Vasic. In addition about one hundred short communications and abstracts were presented in special sessions or as posters. Over 350 delegates participated in the conference from 58 countries from all over the world. The conference organization relied on a Conference Committee, an International Program Committee of 82





## REPORT FROM IFMBE: Region

members, an International Advisory Committee of 21 members, and a Local Organizing Committee of 12 members. Dubrovnik Luxury Services Fenomen d.o.o. was the official agent for support services and social program.

On Tuesday late afternoon guided city tour was organized. After transfer by coaches to the old town, MBEC 2014 participants enjoyed the highlights of Dubrovnik on a guided walking tour. We strolled down the main street Stradun, enjoy wonderful views of some of the most iconic monuments of Dubrovnik such as the Franciscan monastery, Palace Sponza, St. Blaise Church, Rector's Palace, the Dubrovnik Cathedral, and many others. Local guides pointed out all the monuments, churches and other sites of interest on the way and enriched MBEC 2014 participants with

fascinating stories from the history of Dubrovnik Republic (1358-1808) and to the most recent times. After the tour, the conference dinner was held in the Fortress Revelin. Revelin was built in the 15th century as a detached fortress providing additional protection to the eastern City Gate. Welcome drinks were served at the huge stone paved terrace of Revelin, overlooking the old city harbour, while the banquet, enriched by live jazz

music, was taking place inside the fortress.

MBEC 2014 included a Young Investigator Competition with 10 finalists selected from 77 candidates. Young Investigator Awards Committee evaluated their presentations that were scheduled in regular oral and poster sessions. The First Prize was awarded to Mr. Vukasin Strbac, from the Katholieke Universiteit Leuven, Belgium, for his work "Intraoperative 3D Finite Element computation using CUDA"; the Second Prize was awarded to Ms. Lea Rems, from the University of Ljubljana, Slovenia, for her work "Theoretical considerations for the potential

of controlled drug release from lipid vesicles by means of electroporation or electrofusion"; and the Third Prize was awarded to Ms. Katrin Rothmaler, from the Humboldt University of



Berlin, Germany, for her work "Tracking Multiple Phase Coupling Dynamics on a Single Trial Basis" and to Ms. Ana González-Suárez, from the Technical University of Valencia, Spain for her work "Computational Study to Assess whether the Heat Sink Effect of Blood Flow Inside the Portal Vein could Thermally Protect its Wall during RF-assisted Resection". The Honorable mention award was given to Mr. Mohammed Al-Azawy,





## REPORT FROM IFMBE: Region

from the University of Manchester, UK, for his work “Investigating the use of turbulence models for flow investigations in a positive displacement ventricular assist device”. The awards were presented by Prof. Vladimir Medved, Chair of the YIC Awards Committee, Prof. Herbert Voigt, IUPESM President and Prof. Shankhar Krishnan, the Secretary General of the IFMBE.

The Closing ceremony was held at the conference venue. The Closing remarks were given by Prof. Igor Lackovic.

Members of the Croatian Medical and Biological Engineering Society, who was the organizer of this conference were very proud that for the second time in a relatively short period, after

the 9th edition of MEDICON in 2001, another important event of the Federation was entrusted for organization to the Croatian BME Society. Special thanks to the IFMBE for their continuous support.

In conclusion we feel confident that you have enjoyed MBEC 2014 both scientifically and socially. We have made every effort to make MBEC 2014 an unforgettable event. MBEC 2014 was the place where you have met your old friends and made new ones. Together we are continuing on the journey towards new horizons in biomedical engineering facing new challenges and opportunities.





## FEATURE COLUMN: Committee

### Creating the Memories and Celebrating the Legacy of the Bold and the Brave\*

#### BUILDING THE ARCHIVES OF WOMEN SCIENTISTS AND ENGINEERS IN CANADA



Monique Frize

Chair of WiMBE/IFMBE

The INWES Research and Education Institute (International Network of Women Engineers and Scientists ERI)\*\*, in collaboration with the NSERC/Pratt & Whitney Canada Chair for Women in Science and Engineering (Ontario) and the University of Ottawa, organised a two-day workshop on September 11 and 12, 2014, bringing together renowned women scientists, engineers and leaders in archives, libraries and museums to begin the process of collectively building the archives of Women in Science and Engineering in Canada. Supported by a grant from the Social Science and Humanities Research Council of Canada (SSHRC), by

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\*The Bold and the Brave: A history of women in science and engineering. M. Frize, (2009) University of Ottawa Press.

\*\*The INWES ERI is a charity organization incorporated in Canada in 2007. See its website for information on its goal and objectives and links to other reports.

[www.unwes-eri.org](http://www.unwes-eri.org)

NSERC, the University of Ottawa, UNESCO and the Deans of Science and Engineering at the University of Ottawa, this workshop marked the first step of an initiative to address the pressing need to provide current and future women scientists and engineers in Canada with an accurate and inspiring understanding of their past and to learn about the lives and accomplishments of those who came before them. The creation of an Archives of Women Scientists and Engineers in Canada thus aims to build the collective and individual memories of women scientists and engineers in Canada, at a time when the call for the recruitment and retention of more women in science and engineering careers is strong in governmental, economic and academic circles. The forty-five participants came from all regions of Canada, from the USA and from the UK.



Participants prepare for a presentation by Dr. Monique Frize entitled "Personal Experience in Collecting and Donating Archival Material".



## FEATURE COLUMN: Committee

Workshop participants reflected on the collection, preservation, development, and sharing of records with specialists working in the field and policy makers concerned about the persistent



Prof. Heap (standing) and Prof. Frize (sitting)

under-representation of women in science and engineering. In the closing plenary session, the participants adopted a strategic plan to start building an archive at the local, regional, and national levels. Some key steps were identified, which included: Developing a business plan and fundraising strategy to fund a series of activities, creating a user-guide and holding webinars on what materials (paper, audio-visual, electronic and artifacts) should be preserved. Collecting, through oral history if possible, the life stories of women in these fields, especially of those from the “pioneering” decades, was considered a priority. Further discussions on proper methodologies and best practices for individuals from various disciplines around archiving, record keeping, and information management need to be pursued to enable the creation a cloud/website. The construction of a portal/search engine (Women in S&E Archival Access Network), specifically aimed at women in S&E, is thus being considered. It would serve two main purposes: (1) provide an inventory and location of existing

records and (2) identify those locations (archives, libraries, museums, etc.) which are acquiring records relating to women in S&E in Canada.

The Workshop’s final report and other related material will be posted in the coming months on the website of the INWES ERI and in other locations which will self-identify in the near future. We hope this “Canadian experience” can inspire others around the world!

The organizing committee for this workshop was: Dr, Ruby Heap, Professor of History, University of Ottawa

Dr. Claire Deschênes, Prof. of Mechanical Engineering, Laval University

Dr. Catherine Mavriplis, Prof. Mechanical Engineering, University of Ottawa and NSERC/ Pratt & Whitney Chairholder

Dr. Monique Frize, Distinguished Research Prof., Carleton University



One of four panelists, Leslie Weir, Chief Librarian of the University of Ottawa presents The Role of the 21st Century Archives and Libraries in Preserving the Legacy of Those Who Have Shaped or Will Shape our World in the panel discussion Telling your Story and Sharing your Knowledge: The Potential of New Technologies.





## FEATURE COLUMN: Committee

### Why the Clinical Engineering Division needs your participation



Saide Jorge Calil  
Chair of CED/IFMBE

The Clinical Engineering Division is one of the two divisions created by the International Federation for Medical and Biological Engineering (CED/IFMBE).

CED today's composition includes 7 elected, 2 co-opted - senior members and 10 collaborators. Its basic aim is to improve the Clinical Engineering profession and establish a connection among Clinical Engineers all over the world.

Sponsored by IFMBE, it leads several projects to understand what is happening with clinical engineers in different countries and learns about their activities in each of them. Important to mention that all the work is developed on voluntary basis and CED members can use the financial support according to the needs of his/hers project.

CED/IFMBE is the only place that gathers clinical engineers from different parts of the planet and where international discussions can be conducted without any bias regarding cultural or clinical Engineering model. The limits given by the

distance among the members is easily overcome using a Web conference facility, kindly supplied by Kayser Permanente of USA. This allows monthly meetings where all members discuss the progress of the projects and new ideas to promote the profession.

As explained, CED is a forum where clinical engineers (CE) from different countries can discuss the problems they encounter in their own country (government policy, lack of understanding from hospital managers, certification, recognition, activities, etc.), but also learn from other countries how such problems may be solved.



Despite the advantage of having such international forum for discussion, CED still lacks involvement from CEs of several countries as well as Clinical Engineering societies and groups. Observing what is happening to this profession, unlike any other including Biomedical Engineers, there are no International meetings regarding Clinical Engineering where projects, activities,





## FEATURE COLUMN: Committee

difficulties and mainly social interaction can be achieved. Clinical Engineers are always confined to their own country and mostly promoting regional events rather than national events. Also, despite Clinical Engineering being considered a branch of Biomedical Engineering, such field has many peculiarities and activities worth to be internationally discussed.

Soon, CED and the Health Technology Assessment Division (HTDA) also from IFMBE, will jointly launch a free access journal where not only scientific articles but also practical experiences in the fields of Clinical Engineering and Health Technology Assessment will be published. Therefore, CED will need the help of CEs from all over the world to share their experiences in a journal specifically designed only for these two areas of study.

Perhaps, if more CEs could participate and also develop projects or help the project leaders, it will be possible to have a better understanding of what means to be a Clinical Engineer, what activities should worth investing and which group can teach others.

So, think about joining CED to help improving the profession and also learn what is happening with Clinical Engineering worldwide. Most important is to understand what are the directions the health system is pointing to us.

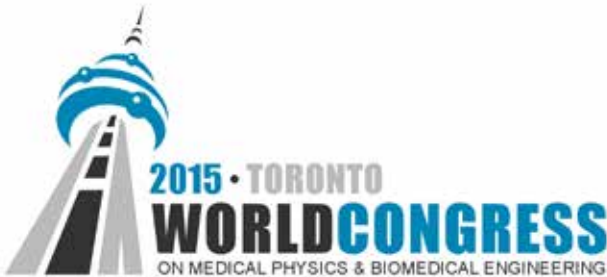
A more detailed explanation about CED and its activities can be found in the new article from the magazine 24X7. Please see link <http://www.24x7mag.com/2014/09/ifmbe-clinical-engineering-division/>





## COMING EVENT

### World Congress 2015 Update



We are looking forward to welcoming you to the 2015 World Congress on Medical Physics & Biomedical Engineering which will be taking place in spectacular Toronto, Canada, from June 7th to June 12th, 2015. The caption for the congress is Health.Technology. Humanity. The World Congress is held once every three years in venues around the world. In 2015, it comes to Toronto, a vibrant city with wonderful entertainment, shopping and dining, and one of the most multicultural cities in the world.

- The congress will be chaired by Dr. David Jaffray of the Canadian Organization of Medical Physicists (COMP) and Dr. Tony Easty of the Canadian Medical and Biological Engineering Society (CMBES).

- The organizing committee has been working hard to lay the groundwork for an outstanding congress and as we get closer to June 2015, activity is ramping up

- We have secured the services of International Conference Services (ICS) who are providing

professional congress organization services. ICS has many years of experience organizing very successful events all over the world and we are pleased to be partnering with them to deliver a successful congress.

- We are hoping to welcome participants to the World Congress from North America, Europe, Asia, South America, Africa and Australia.

- The committee chairs represent a cross-section of experience to support the Congress as the world's leading forum for presenting current scientific work in health-related physics and engineering to an international audience. The International Advisory Committee includes leaders in all congress topic areas from around the world. As a major event for science, medicine and technology, the Congress provides a comprehensive overview



and in-depth, first-hand information on new developments, advanced technologies and current and future applications.

**- There are five Congress Themes:**

- Global Health Challenges
- Evidence and Health Informatics



## COMING EVENT



- Women in Biomedical Engineering and Medical Physics
- Urban Health and Future Earth
- Next Generation Medicine

- Nineteen different tracks have been identified, representing the full spectrum of topics in Medical Physics and Biomedical Engineering.

- The Congress will be comprised of six (6) days of courses, plenaries and scientific sessions for a total of over 400 sessions. The first call for papers will be released shortly, and the congress organizers encourage you to

get in touch if you wish to organize a focused group of talks on any topic.

- The scientific and continuing education sessions as well as the extensive social program will provide you with excellent opportunities for professional development and interaction with colleagues from around the world and a chance to discover and enjoy the beautiful city of Toronto.

- More information about World Congress 2015 can be found on the congress website at: <http://wc2015.org/>

-We look forward to seeing you in Toronto in June 2015!

**2015 WORLD CONGRESS**  
ON MEDICAL PHYSICS & BIOMEDICAL ENGINEERING

CO-HOSTED BY



CMBES





**IFMBE**

**International Federation for Medical and Biological Engineering**

A member of the international Union on Physical and Engineering Science in Medicine ( IUPESM )

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