SPOTLIGHT ON
ASIA–PACIFIC

IFMBE NEWS

International Federation of Medical and Biological Engineering
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IFMBE News
International Federation of Medical and Biological Engineering

CONTENT

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IFMBE News
International Federation of Medical and Biological Engineering

EDITORIAL

A New Perspective on BME in Asia-Pacific region

Kang Ping, Lin
NEWS EDITOR

The Asia-Pacifica region has attracted the attention of the world for its obvious progress in many fields in recent years. The development on BME was no exception. I assume many of you in other regions are interested to know about what happened and what will happen on BME in Asia-Pacific region. So, we made this issue for you.

In this issue, we gladly get the words from the president Ratko Magjarevic who explained changes in the IFMBE Statutes leading to restructuring of the governing bodies.

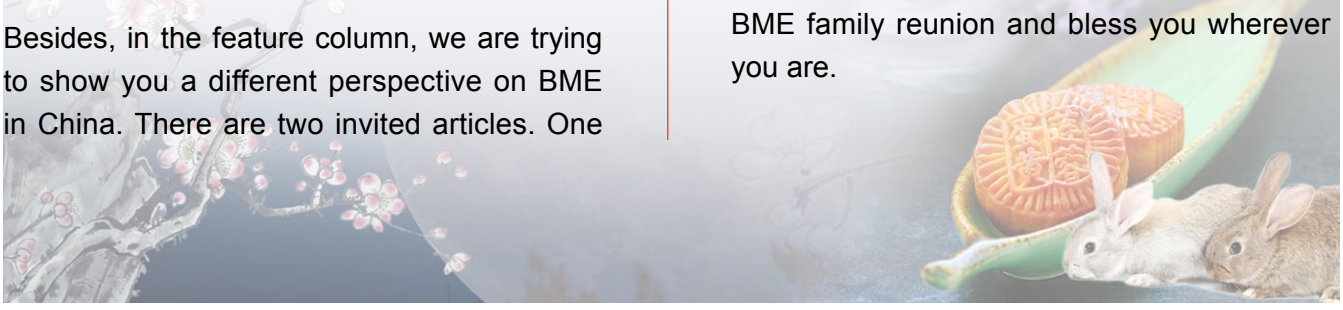
At this early July, IFMBE Asia-Pacific Work Group held its work meeting in Japan. We are so happy to receive submissions and materials from most of IFMBE affiliated members in Asia-Pacific region, and eager to share them with you.

Besides, in the feature column, we are trying to show you a different perspective on BME in China. There are two invited articles. One focused on the progress of Clinical Engineer Certification in China, the other introduced the development of BME in Chinese traditional medicine. We sincerely appreciate IFMBE CED member Dr. Dan ZHOU, and Dr. Huayuan YANG from Traditional Chinese Medicine Engineering Committee in the Chinese Society of BME. Also, thanks for well organized work by Ms. Xiaohong WENG.

Finally, with the coming event column, four international BME activities were released. They are looking forward to your participation.

With your support, we will continuously work on the News, if you have anything, please don't hesitate to contact us at: ifmbe_news@yahoo.com.

In every September, the Moon Festival (on August 15th of the lunar calendar) is a traditional folk festival in East Asia, originated in China. This day the full moon looks roundest, representing family reunion. In this autumn, on 26 and 28 September 2013, members of the IFMBE Administrative Council and Societies Council will meet in Seville in conjunction with the XIII Mediterranean Conference. Here taking this opportunity, I look forward to our BME family reunion and bless you wherever you are.



Words from the President

Ratko Magjarevic
IFMBE President

Dear Colleagues,

In this autumn, on 26 and 27 September 2013, members of the IFMBE Administrative Council will meet in Seville in conjunction with the XIII Mediterranean Conference. At this meeting, for the first time, four Regional Representatives elected to the Administrative Council will be joining in the AC meeting. Let me remind you that the IFMBE General Assembly has approved changes in the IFMBE Statutes leading to restructuring of the governing bodies. From each of four regions defined by the IFMBE (North America, Latin America, Asia-Pacific Rim and, Europe and Afrika, one representative is elected to the AC by the delegates of the IFMBE General Assembly from that region only. The idea behind the restructuring was to enable to the IFMBE governing bodies to get more and closer information on developments of biomedical engineering in the regions, better insight on needs for the regional BME community and finally, help the AC to make better decisions for appropriate actions in the region and globally. The second change is in the term of office of Regional representatives to the AC elected in such a way: their term of office is for three years period with a possibility to be re-elected. These changes will most probably bring to a more dynamic action plan of the AC.

In meetings of the regional working groups during last few years, the IFMBE Officers have been able to identify many common needs, like a need to:

• learn more on BME education in regions,
• learn how different BME programs are accredited and which are the criteria for accreditation;
• the need to build better understanding between the academia and the industry - which resulted in an action of the Industry Working Group which developed a tool to collect data on best research laboratories and on small and medium size enterprises;
• build the next generation of BME leaders by implying traveling fellowships for young scientist etc.

Once there is experience from one region, the results are implemented in other regions.

The development of a strategy for stronger regional collaboration and transfer of successful results of the collaboration to other regions and globally, is a responsibility of the Council of Societies.

There has been some delay in implementation of the new structure due to the fact that some affiliated societies did not have their delegates present at the latest meeting of the IFMBE General Assembly in Beijing, and it took some time untill numerous leaders and the membership of affiliated societies became aware of the changes. Though the Officers prepared the documents which were presented to the General Assembly and we believe they presented a solid basis for preparing the Charter of the Council, again, when the Charter was "put to paper", it took several mailing rounds to finish the Charter so that it is written in clear English and easy to follow. From the first nominations of Regional Representatives, the ballot and the election, we are all going to learn which are the positive sides of the process and which are the weaknesses. The Statutes of the IFMBE, just the same as the Charter of the CoS are here to ensure equal opportunities for all affiliated Societies and their representatives and membership. In case we discover that they are limiting the activities or outdated, we have the power to change them and adopt them to the needs of the Federation.

Though I do not know the names of colleagues who are to be elected to the IFMBE AC as Regional Representatives at the time of writing this text, I wish them all a warm welcome to the Administrative Council and a lot of success in their work for the benefit of biomedical engineering and biomedical engineers!

I would also like to express my gratitude to four ordinary members of the AC whose term of office has formally finished at the World Congress General Assembly in Beijing in 2012, but due to the changes in the structure of the AC, they were kindly asked to continue their activities within the IFMBE AC till the end of 2012. These colleagues, AC members from 2006 to 2012 are (in alphabetical order):

Prof. Saide Calil from Brasil, who significantly improved the activities of the Clinical Engineering Division and continued to serve in the AC from 2012-2015 as the Chair of the CED ex officio;

Prof. Akos Jobaggy from Hungary, who organized very successfully the 5th IFMBE European BME Conference in Budapest in 2011 and contributed to the visibility of IFMBE Proceedings Series since the Proceedings of this Conference have been declared among 25% of most downloaded books from Springer. Akos continues to serve as the Chair of the Conference Committee;

Prof. Sun Kim from Korea who organized the World Congress in Medical Physics and Biomedical Engineering in Seoul in 2006;

Prof. Jan Wojcicki from Poland who initiated founding of the Industry Working Group, organized it and established important links to European medical device industry and EUCOMED. Jan continues to serve as the Chair of the Industry WG.

The interest for collaboration in health and health care at global level is growing, obviously also due to increased use of technology which makes the borders closer and enables quality contacts of professionals from all over the world, as often as necessary with little resources. The Federation was always promoting international collaboration in the fields of its interest. As a result, we have gained a new affiliate, the Peruvian Biomedical Engineering-Society. The process of affiliation was closed by the ballot late in May and I was happy to announce the successful result of the process to the members of the society during the 2nd Congress of the Peruvian BME Society in Lima, Peru, in May this year. The President of the Society Luis Vilcahuaman made all possible efforts to bring together the representatives of the Latin American BME Societies to the Conference and to a CORAL meeting (CORAL stands for El Consejo Regional de Ingeniería Biomédica para América Latina). During the meeting, it was announced that CORAL as an transnational non-governmental organization was registered and as such it became an official organization which may represent the interests of biomedical engineering as a research community and a professional group. CORAL, due to its structure, consists of national Biomedical Engineering Societies from Latin America and from Chapters of the IEEE EMBS. In such a way, also biomedical engineers from countries where there is no BME professional organization are included into IFMBE.

The Officers and the AC have decided to encourage opening of new scientific and professional activities within IFMBE whenever there is interest for that. So it was decided that IFMBE establishes a new working group on Health Informatics. Prof. Yuan-Ting Zhang from the Chinese University of Hong Kong was appointed the Chair of the Health Informatics Working Group. Prof. Zhang established the HIWG and proposed that IFMBE organizes a topical conference on Health Informatics in November this year, the IFMBE International Conference on Health Informatics ICHI 2013. With enormous enthusiasm and energy Prof. Zhang outlined the Conference and its program through inviting numerous experts to organize minisymposia and prepare presentations. Since Health Informatics is a “hot topic” for researchers, but also important for immediate implementation of technology in health care, expectations on results of the conference are very high. The organizers were able to agree on Special Issues on Health Informatics with editors of major journals in biomedical engineering, IFMBE’s Medical and Biological Engineering and Computing (MBEC) as well as IEEE EMBS Journal on Biomedical and Health Informatics. Please visit the web site of the Conference www.ichi2013.org for more information on the exciting program and distinguished keynote speakers. Thanks to the advice of researchers from the University of Coimbra, the oldest university in Portugal and the Portuguese Society for Biomedical Engineering, Vilamoura in the south of Portugal was chosen for the venue of the conference. We hope that many of you who read this article will join the participants of the ICHI 2013 and enjoy presentations on the state of the art in the field as well as the beautiful sceneries of the southern coast of Portugal.

End

Minutes of Meeting of the IFMBE Working Group of Asia Pacific Activities

Date: Saturday 6th July 2013
Time: 09:30 to 11:00hrs
Venue: Meeting Room 803, Osaka International Convention Center, Osaka, Japan

Present:

Fan Yubo	China	Chinese Society For Biomedical Engineering
Kang-Ping Lin	Chinese Taipei	Taiwanese Society of Biomedical Engineering
Zheng Yongping	Hong Kong	Hong Kong Institution Of Engineers (Bioengineering Division)
Ichiro Sakuma	Japan	Japan Society Of Medical & Biological Engineering
Fatimah Ibrahim	Malaysia	Malaysian Society Of Medical And Biological Engineering
Toh Siew Lok	Singapore	Biomedical Engineering Society (Singapore)

By Invitation

Ratko Magjarevic	Croatia	IFMBE President
Herb Voigt	USA	IFMBE Past President
Goh Cho Hong, James	Singapore	IFMBE Vice-President
S M Krishnan	USA	IFMBE Secretary-General
Arni Ariani	Indonesia	Observer
Peng Un Mak	Macau	Observer

1. **Welcome and Introductory Remarks by:**
   a. Prof Ratko Magjarevic (President, IFMBE)
   b. Prof Herb Voigt (Past President, IFMBE)
   c. Prof James Goh (Vice-President, IFMBE)
   d. Prof S M Krishnan (Secretary-General, IFMBE)

2. **Reports by Affiliated Members**

Hong Kong:

Prof Zheng Yongping, Chairman of the Hong Kong Institution Of Engineers (Bioengineering Division), updated the meeting on the Biomedical Engineering International Conference (BME2012) which was held on 5-8 December 2012. The details on the conference are given in Appendix A1. He also provided a report from the Chairman of the Hong Kong Institution of Engineers Biomedical Division (see Appendix A2)

Chinese Taipei:

Prof K P Lin proposed to obtain funding from IFMBE for the top 3 prizes (US$500 each) in Young Investigator Awards (YIA) for 9th Asian Pacific Conference on Medical & Biological Engineering (APCMBE 2014) which will be held on 9-12 October 2014 in Tainan, Taiwan. He also indicated that the Taiwanese Society of Biomedical Engineering would sponsor the 3 merit awards for the YIA.

The next venue for the 10th Asian Pacific Conference on Medical & Biological Engineering in 2017 will be discussed and decided in Tainan. One possible venue proposed was in Mongolia. However, other members of the Working Group are invited to submit proposal for the next conference venue.

Singapore:

Dr Toh Siew Lok, on behalf of the Biomedical Engineering Society (Singapore) reported that the society organized 3 meetings in 2013 namely:

a) The Biomedical Engineering Society (BES) 7th Scientific Meeting on 18 May 2013. This scientific meeting was organized by the Student Chapter of the Society and it was targeted at students from the tertiary institutions. However, there were also participations from the pre-university students too.

b) International Congress on Advances in Citizen, Cyberspace and Environmental Safety and Security (ACCESS) was held on 5-7 June 2013, Singapore

c) The BES will be organizing the 15th International Conference on Biomedical Engineering (ICBME2013) on 4-7 Dec 2013 in Singapore. There will be a design competition which focuses on the design of a low-cost medical device to improve healthcare in resource-scarce communities. This competition is jointly organized by the Biomedical Engineering Society (Singapore) (BES) and the Society of Engineers for the Community (SEC).

3. **Reports by Observers**

Macau:

Dr Peng Un Mak of the Macau Society of Biomedical Engineering summarized the activities undertaken by the Society as shown in Appendix B.

4. **Any other matters**

a) Discussion on the role of the Regional Group Representative (RG Representative) and related issues:

According to the Council of Societies Charter, a Regional Group Representative will represent the interest of the Region in the IFMBE Administrative Council. Item 5.3 of the Charter states that the Regional Representatives to the IFMBE AC are elected by and from the delegates of the corresponding Region. A call had been made by the Chairman of the Council of Societies for nomination of candidates who were interested in running for RG Representative. These candidates could be the national society's ordinary member to the Council of Societies, or any other delegate to the General Assembly) and he/she would have to be supported by the individual Society. The election for the Regional Group Representative for each region would be conducted independently by delegates from that region by making use of electronic balloting organized by the Office of the Secretariat.

b) Database of BME and Medical Physics programs:

All members were reminded to submit their information regarding the BME and Medical Physics programs offered in their respective countries as soon as possible using the template below:

Country:				
Academic Institution:				
Department/Centre:				
Academic Programs	*Biomedical Engrg / Bioengrg*	*Medical Physics*	*Clinical Engrg*	*Other BME related programs (please specify)*
Contact Person(s):				
Designation:				
E-mail address:				
Telephone number:				
Department Mailing address:				

c) APRN Fellowship program for WC2015 in Toronto:
The Working Group Secretary, Dr Toh Siew Lok would be making preparations for the above program and it would be announced to all members of the Working Group soon.

d) 1st Council of Societies (CoS) meeting:
Members were reminded of the 1st Council of Societies (CoS) meeting which would be convened at the Medicon 2013 in Seville, Spain on 25th – 28th September 2013 (www.medicom2013.com). The CoS meeting would be held on Saturday 28th September 2013.

Recorded by: Toh Siew Lok
Vetted by: Ichiro Sakuma
Date: 25 Aug 2013

(L-R): Toh Siew-Lok, Peng Un Mak, Kang-Ping Lin, James Goh Cho Hong, Ratko Magjarevic, Arni Ariani, S M Krishnan, Fatimah Ibrahim, Herb Voigt, Ichiro Sakuma, Zheng Yongping, Fan Yubo

The Sixth WACBE World Congress on Bioengineering

The 6th World Association for Chinese Biomedical Engineers (WACBE) World Congress on Bioengineering was held in Beijing, China, from August 6th to 8th, 2013. As a biennially important event of the WACBE, WACBE 2013 was jointly hosted by Beihang University (BUAA) and Chinese Society of Biomedical Engineering (CSBME). Dr. Yubo Fan, the president of CSBME, the president-elect of WACBE and the dean of School of Biological Science and Medical Engineering, BUAA took up the post of congress Chair.

The congress invited a lot of world experts. About 300 experts and scholars from overseas and domestic attended the congress opening ceremony. Savio L-Y Woo, Professor from University of Pittsburgh and member of NAE and IOM, Ji Peiwen, Deputy Director from the Department of Mathematical and Physical Sciences of National Natural Science Foundation of China, Li Zongming, Professor from Cleveland Clinic and the President of the WACBE, and Professor Fan Yubo addressed the ceremony. The President-elect of IFMBE, Professor James CH Goh as the invited speaker was present at the Congress.

James CH Goh

Zong Ming Li

Yubo Fan

The WACBE Congress is organized biennially, the first congress was held at Taipei in 2002, then at Beijing, Bangkok, HongKong, and TaiNan. It benefits from the contribution of Chinese scientists, the WACBE Congress gradually possess high academic level and international influence. The congress has found its growing population and acceptance among the biomedical engineering field. The 6th WACBE Congress attracted over 300 delegates, and collected more than 320 abstracts.

During the Congress, there were 25 experts made the keynote speeches, including 5 members of NAS, NAE, IOM, AAAS and CAE, as listed below:

• Professor ShuChien, Member of NAS, NAE and IOM, Fellow of AAAS, University


Shu Chien


Savio Woo


Chien Ho


Kam W Leong


Depei Liu

of California, San Diego;
Topic: Mechanotransduction in Vascular Endothelial Cells
• Professor Savio L-Y Woo, Member of NAE and IOM, University of Pittsburgh;
Topic: How Bioengineering Can Change Orthopaedic Sports Medicine in the Next 20 Years
• Professor Chien Ho, Member of NAS, Carnegie Mellon University;
Topic: Imaging the Immune Response with Magnetic Nanoparticle
• Professor Kam W Leong, Member of NAE, Duke Unoversity;
Topic: Opitimizing Nanotherapeutics with Engineering Strategies
• Professor Liu Depei, Member of CAE, past president of the Chinese Society of Biomedical Engineering;

Topic: Cardiovascular Translational Medicine
The Congress covered related areas in bioengineering, as follow:

• Biomaterials, Tissues Engineering and Regenerative Medicine
• Cardiovascular Biomechanics
• Musculoskeletal Biomechanics
• Mechanobiology
• Rehabilitation
• Biomedical Imaging
• Biomedical Signal Processing and Biosensors
• Biosensors and Bioinstrumentation
• Cellular, Genomic & Biomolecular Engineering

The scientific programs included invited plenary and keynote speeches, special symposiums, free paper presentations, product exhibition, student activities, social programs. Also, there were two forums focused on BME Education and Biomedical Device Industry.

On the Biomedical Engineering Education Forum, Professor Arthur Mak from Chinese University of HongKong, Professor Lin Kangping from Chung Yuan Christian University, and Professor Liu Zhicheng who represented the China National BME Education Supervisory Committee gave the speeches. Experts from overseas and domestic had shared their experiences and exchanged views on the biomedical engineering education. Meanwhile, their successful cases related the interdiscipline education enlightened many delegates.

Kang-Ping Lin

Arthur Mak

On the Biomedical Device Industry Forum, around the government policy, industry development status and trend, Wang Lanming, official from the Department of Medical Device Supervison of China Food and Drug Administration, Director Wang Xitai from the Ministry of Civil Affairs of People's Republic of China, and Jiang Feng from the China Association for Medical Devices Industry made the Keynotes speeches. The forum attracted many outstanding medical device businesses to join the discussion.

The Congress has gained the reputation as its high academic level. Meanwhile, student volunteers from the School of Biological Science and Medical Engineering of Beihang University gave deep impression on delegates, as well as learned lots of experience from experts around the world.

Volunteers group photo with experts

The 2013 International Conference for Bioeconomy

The 2013 International Conference for Bioeconomy (BioEco2013) was held successfully in Tianjin, China, from June 24 to 26. There were over 1500 registered delegates attended the conference. Apart from the exhibition, the BioEco 2013 had six sessions: Frontier of Life Science, R&D in Drug Innovation, Food Safety Forum, Development of Medical Devices, Entrepreneurship and Investment, Talents in Biotechnology.

Chinese Society of Biomedical Engineering successfully organized the session: Development of Medical Devices. The President of Chinese Society of Biomedical Engineering Prof. Fan Yubo chaired the session. There were more than 200 biomedical engineers, students, industry and government representatives attended the session.

Chiu S. Lin

Yu Mengsun

The session mainly focused on the latest development and the trend about the medical devices. Several critical issues were discussed, such as the design, the standards and quality, the animal and clinical trials of Medical Devices. Delegates were exchange ideas and extensively discuss problems and challenges arising from the human performance engineering, biomechanics, biomaterials, medical imaging, and biosensor.

The information of invested speakers and their topics as follow:

• Speaker: Yu Mengsun, Academician of CAE, Institute of Aviation Medicine, Air Force
Title: Human Performance Engineering
• Speaker: Chiu S. Lin, Ph.D, Former Division Director, Office of Device Evaluation, CDRH, FDA
Title: Development and Trend of Innovative Medical Device Technology
• Speaker: FanYubo, Dean, School of Biological Science and Medical Engineering, BUAA; President, Chinese Society of Biomedical Engineering
Title: Innovative Research on Medical Implants
• Speaker: WANG Chunren, Director, Institute for Medical Devices Control, NIFDC
Title: Preclinical Safety Evaluation of Tissue Engineered Medical Products
• Speaker: Cheng-kung CHENG, Professor, School of Biological Science and Medical Engineering, BUAA
Title: Insight of the Future Development on China Medical Industry-a Current China

Orthopaedic Industry Perspective

• Speaker: Guiqing Lily Yao, Professor, Primary Care and Population Sciences, Faculty of Medicine , University of Southampton

Title: Cost- effectiveness analysis of computed tomographic colonography versus colonoscopy or double contrast barium enema for investigation of patients with symptoms suggestive of colorectal cancer: economic evaluation of two randomized clinical trials

• Speaker: ZouHao, Neusoft A&T Diagnostics Co., Ltd.

Title: The Tendency of Laboratory Automation System

• Speaker: ChenSiping, professor ,Department of Biomedical Engineering, School of Medicine, ShenzhenUniversity

Title: The Status and Development on Medical Industry Taking Example of Shen Zhen

• Speaker: Li Xiuqing, Vice President of Shinva Medical Instrument Co., Ltd

Title: A Study on the IndustrialTechnology Innovation System of China Medical Device

• Speaker: Anthony Wilkinson, Medical Director, COOK Medical

Title: Growing your business and R&D profile in the Asia Pacific Medical Device Market– the Cook Medical perspective

• Speaker: YU Zhenhang, Deputy Chief, Frontier Biotechnology Division , ChinaNationalCenter for Biotechnology Development

Title: Analysis on the current status of China's medical device industry

• Speaker: WANG Zhibiao, Director, NationalEngineeringResearchCenter of Ultrasonic Medical

Title: A Tentative Probe into Minimally-invasive and Noninvasive Medicine

• Speaker: LI Yingxin,Chinese Academy of Medical Sciences&Peking Union Medical College Institute of Biomedical Engineering

Fan Yubo

Anthony Wilkinson

Title: How to realize the medical technology created in China--Medical device innovation demonstration system

For more information:
http://www.bioeco.net.cn/english/index.htm

Chairman's Annual Report (Session 2012/2013)

HKIE THE HONG KONG INSTITUTION OF ENGINEERS 香港工程師學會
Biomedical Division
The Hong Kong Institution of Engineers

Introduction

With the enthusiastic dedication and leadership and of our executive board members and keen participation of our members, the Biomedical Division (BMD) has been gone through a fruitful year of Session 2012/2013.

The global aging trend is noticeable locally and worldwide, coupling with the ever-increasing standard of living and healthcare, the past year had seen persistent growth and development of biomedical engineering. In view of such trend, the BMD has organised and co-organised numerous activities in collaboration with the industry, the academia and the government in:

1. supporting local biomedical engineering research and experimentation;
2. supporting product design, development and commercialisation;
3. running technical training, workshops and visits;
4. attracting and inspire more young students to pursue the profession.

The BMD has contributed best effort to serve our society, hospitals, medical centres, medical device industry, academia and all other related stakeholders.

During this Session, the BMD successfully completed the government funding under the Professional Services Development Assistance Scheme (PSDAS) of the Commerce and Economic Development Bureau (CEDB), which was the fifth successful PSDAS approved project of the Division. With the project titled "**To enhance the professional competence of biomedical engineers in medical device safety through the mastering of update knowledge on technology innovation, regulatory affairs and health technology assessment**", new initiatives in research and technology, regulatory issues and quality management systems were introduced in order to enhance the competence of local biomedical engineers in commercialising research and development deliverables as well as design and manufacturing of high value-added medical and healthcare devices. Project deliverables were all successfully carried out, including: 3-day BME2012 Biomedical Engineering International Conference at Headquarters of Hospital

Authority and Hong Kong Productivity Council from 5 December 2012 to 7 December 2012 with conference theme “Improving Healthcare through Innovative Technology and Regulatory Affairs” and a series of conference subthemes, paper presentations and Young Engineers’ Paper Competition; and 1-day Post-conference Technical Visit to The University of Hong Kong – Shenzhen Hospital and Shenzhen Testing Center of Medical Devices (ST-CMD) on 8 December 2012.

A series of CPD seminars were organised in this session, including: Vision Care Technology Platform for Amblyopia Treatment; Introduction on Essential Elements of ISO13485 Medical Device Quality Management System; Overview on Effective Engineering Techniques for the Verification of Optical Quality of Endoscopes; Advanced Automation Technologies for Medical Devices Tracking and Regulatory Compliances; Nanotechnology and Advanced Biomaterials for Medical and Healthcare Applications; and Technical Seminar of Medical Device Manufacturing and Technologies. The BMD also proactively embarked on membership drive to engineering undergraduates via various promotional events, namely: “Course Selection Seminar Series” for new 4-year undergraduates in HKU; Biomedical Engineering Careers Talk for HKIE Membership Promotion in PolyU; and Seminar on HKIE Membership Promotion and Biomedical Engineering Careers Talk in HKU. In addition, technical visits and certificated training courses were conducted, namely: Study Mission on Health and Beauty Care Technology to South Korea; Study Mission on Medical and Healthcare Device to Singapore; and a 3-day Medical Device Adverse Event Investigation and Management which was co-organised with ECRI Institute.

I would like to extend my gratitude to the dedicated support from the HKIE Headquarters and other Divisions, and particularly for the enthusiastic collaboration of all our Committee Members and relevant stakeholders, without their support and professional contribution, the BMD could not have organised these activities during the year. In the upcoming year, the BMD will continue to promote high quality continue professional training to existing biomedical engineers, to attract young talents to pursue the biomedical engineering profession, to provide excellent services to the clinical institutes, and ultimately to safe guard the general public’s benefit and interest. I step down with great confidence that the new Chairman and Committee members will lead the Division to the next era, with sustainable growth and a view of benefiting our biomedical engineering profession, industry and community.

Thank you all

THE HONG KONG INSTITUTION OF ENGINEERS 香港工程師學會
Biomedical Division
The Hong Kong Institution of Engineers

2. Division Activities

Date	Type of Activity	Topic(s)	Speaker(s)
11 May 2012	Seminar	Vision Care Technology Platform for Amblyopia Treatment	Ms. Alice CHOW Manager Bio-Medical Electronics, ASTRI
4 - 5 July 2012	Seminar	Introduction on Essential Elements of ISO13485 Medical Device Quality Management System	Multiple speakers
14 -17 July 2012	Visit	Study Mission on Health and Beauty Care Technology to South Korea	Multiple speakers
10 September 2012	Seminar	CPD Seminar - Overview on Effective Engineering Techniques for the Verification of Optical Quality of Endoscopes	Dr. Dennis C. LEINER Chief Technology Officer Lighthouse Imaging
11 – 14 September 2012	Visit	Study Mission on Medical and Healthcare Device to Singapore	Multiple speakers
19 October 2012	Seminar	Advanced Automation Technologies for Medical Devices Tracking and Regulatory Compliances	Multiple speakers
3 - 11 November 2012	Seminar	Technical Seminars at InnoCarnival	Multiple speakers
5 December 2012	Seminar	"Course Selection Seminar Series" for new 4-year undergraduates - Civil Engineering, Mechanical Engineering, Electrical, Manufacturing and Industrial, and Biomedical Engineering	Multiple speakers
5 - 8 December 2012	Conference	Biomedical Engineering International Conference 2012	Multiple speakers
26 January 2012	Seminar	Nanotechnology and Advanced Biomaterials for Medical and Healthcare Applications	Multiple speakers
2 February 2013	Seminar	Technical Seminar of Medical Device Manufacturing and Technologies	Multiple speakers
23 February 2013	Seminar	Biomedical Engineering Careers Talk for HKIE Membership Promotion	Ir Albert POON Mr. Bryan SO
18 March 2013	Seminar	Seminar on HKIE Membership Promotion and Biomedical Engineering Careers Talk	Ir Albert POON Ir Tommy LAM
26 – 28 March 2013	Training Course	Medical Device Adverse Event Investigation and Management	Dr. Scott LUCAS Program Manager, Engineering Accident & Forensic Investigation, ECRI Institute

THE HONG KONG INSTITUTION OF ENGINEERS 香港工程師學會
Biomedical Division
The Hong Kong Institution of Engineers

3. **List of Committee Members for Session 2012/2013**

Post	Title	Name
Chairman	Ir Dr	CHAN Kwok Kwan
Immediate Past Chairman cum Ex-officio Member (Council Member (Division))	Ir	Albert POON Ka Fat
Deputy Chairman	Ir Prof	ZHENG Yong Ping
Hon Secretary	Ir	Raymond POON Kwok Ying
Hon Treasurer	Ir	Moises CHU Yiu Mo
Committee Member (Public Relations Committee (PRC) Representative)	Ir Dr	Kelvin YEUNG Wai Kwok
Committee Member (Community Service Committee (CSC) Representative)	Ir	Richard LUN Chi Chung
Committee Member (Continuing Professional Development Committee (CPDC) Representative)	Ir	Yorkie CHOW Yuk Ki
Committee Member	Ir Dr	Peter CHIU Ping Kuen
Committee Member	Ir	Andy CHUNG Ki Tung
Committee Member	Ir	Raymond FU Kwok Fu
Committee Member	Ir Prof	Aaron HO Ho Pui
Committee Member	Ir	Ricky OR Kam Ming
Committee Member	Ir	SO Leng Chiu
Committee Member	Ir Dr	Eric TAM Wing Cheung
Committee Member	Ir Prof	Peter YU Kwan Ngok
Ex-officio Member (AMC Representative)	Mr	YUEN Lai Man
Ex-officio Member (YMC Representative)	Ms	Venice HUNG Chun Leung
Ex-officio Member (Discipline Representative)	Ir Prof	Daniel CHOW Hung Kay
Co-opted Member	Ir	Yuk Ho TAM
Co-opted Member	Mr	Bryan SO
Co-opted Member	Dr	Michael TO

Macau Society of Biomedical Engineering Activity

In 2012

2012-5-15	Training from Agilent Technology
2012-06-20	2012 International Conference on Biomedical Engineering and Biotechnology (iCEBEB 2012) [at Macau]
2012-07-24 to 2013-07-27	2012 BME summer camp I (at Macau and Zhuhai)
2012-08-14 to 2013-08-14	2013 BME summer camp II (at Macau)

In 2013

2013-06-08	Anti-drug campaign (at Macau)
2013-06-20	Symposium on Medical Device and Health Technology Assessment (at HongKong)
2013-07-24 to 2013-07-27	2013 BME summer camp I (at Macau and HongKong)
2013-08-7 to 2013-8-10	2013 BME summer camp II (at Macau and HongKong)
2013-08-17	EMBS HK-Macau Paper Competition 2013 (at Hong Kong)
2013 Nov/Dec	Macau BME forum (still in preparation)

The Mongolian Society for Biomedical Engineering (MSBME)

Enkhjargal Biziya, Ph.D

The Mongolian Society for Biomedical Engineering (MSBME) was founded in 1999 by Prof. B.Enkhjargal, and is, today, well established at the Mongolian universities and hospitals and companies.

MSBME goals

One of the goals of the Society is to build a network for education, research, manufacturing and politics within the background of biomedical engineering (BME). With the organization of regular scientific meetings, all these fields are brought together. Annual scientific prices stimulate also younger members to play an active role in the Society.

With this in mind, the MSBME aims at establishing contacts, exchanges of information and experience, as well as cooperation between industrial and scientific people who want to apply physical and technical concepts to biology and medicine.

In 2012, MSBME included an active membership of 16 collective members and about 70 individual members. Most of the individual members work at the universities, the universities of applied sciences, and the institutes. Other members are engineers and physicians working at hospitals and in biomedical and medical companies.

MSBME journal

The journal “Эмнэлгийн техник, технологи/ Medical equipment and advanced technology”, which is also the official journal of the MSBME. From published 2009.

MSBME-CUBE

Club for undergraduate biomedical engineering (CUBE) is a student-run club whose mandate is to promote biomedical engineering at the undergraduate level.

First congress Mongolian Biomedical Engineering was held during 3-5 July, 2011 Ulaanbaatar, Mongolia

Welcome to Mongolia

(Above information compiled according to the report of Dr. Enkhjargal Biziya of the Mongolian Society Of Biomedical Engineering, at the Beijing meeting of the IFMBE Working Group of Asia Pacific Activities, 28th May 2012.)

Biomedical Engineering in Thailand: Current Status

BME in Thailand has been established for 14 years started with the Master program at Mahidol University. Now, there are 8 Universities offering BME programs in Thailand.

Currently, in terms of education, BME education is ranked within the top three during the last 3 years for the university admission exam of the undergraduate students.

BME Research areas in Thailand include:

1. Bio-Signal and Image Processing
2. Tissue Engineering and Drug Delivery Systems
3. Advanced Computing in Medicine
4. Rehabilitation Engineering and Artificial Organs
5. Robotics and Computer-Integrated Surgery
6. Biosensors and Instrumentations

BME Community in Thailand

There are currently 2 BME Associations namely (a) Thai BME (BMEiCON) and (b) Thai EMBS (ISBME). Both associations have a common meeting through the BME consortium.

BME in Thailand(8 University)

(Top 3, Admission Ranking for Bachelor's Degree Program)

	Bachelor's Degree	Master Degree	Doctoral Degree
Mahidol University	☑	☑	☑
Chiangmai University		☑	☑
Chulalongkorn University		☑	☑
King Mongkut's Institute of Technology Ladkrabang	☑ (Program in EE)	☑ (Program in EE)	
King Mongkut's University of Technology Thonburi		☑	☑
Srinakharinwirot University	☑ (Program in EE)		
Thammasat University		☑	☑
Prince of Songkla University	☑ (Program in EE)	☑	☑

Department of Biomedical Engineering, Faculty of Engineering, Mahidol University

Mahidol University is an oldest and largest medical oriented university in Thailand.

It has 3 Med Schools/ 4 Hospitals and Med Institutes:

- Faculty of Medicine – Siriraj Hospital (Largest Hospital in South-East Asia/ 120+ Years Old)
- Faculty of Medicine – Ramadhibodi Hospital
- Faculty of Tropical Medicine
- Golden Jubilee Medical Institute

Research Tracks:

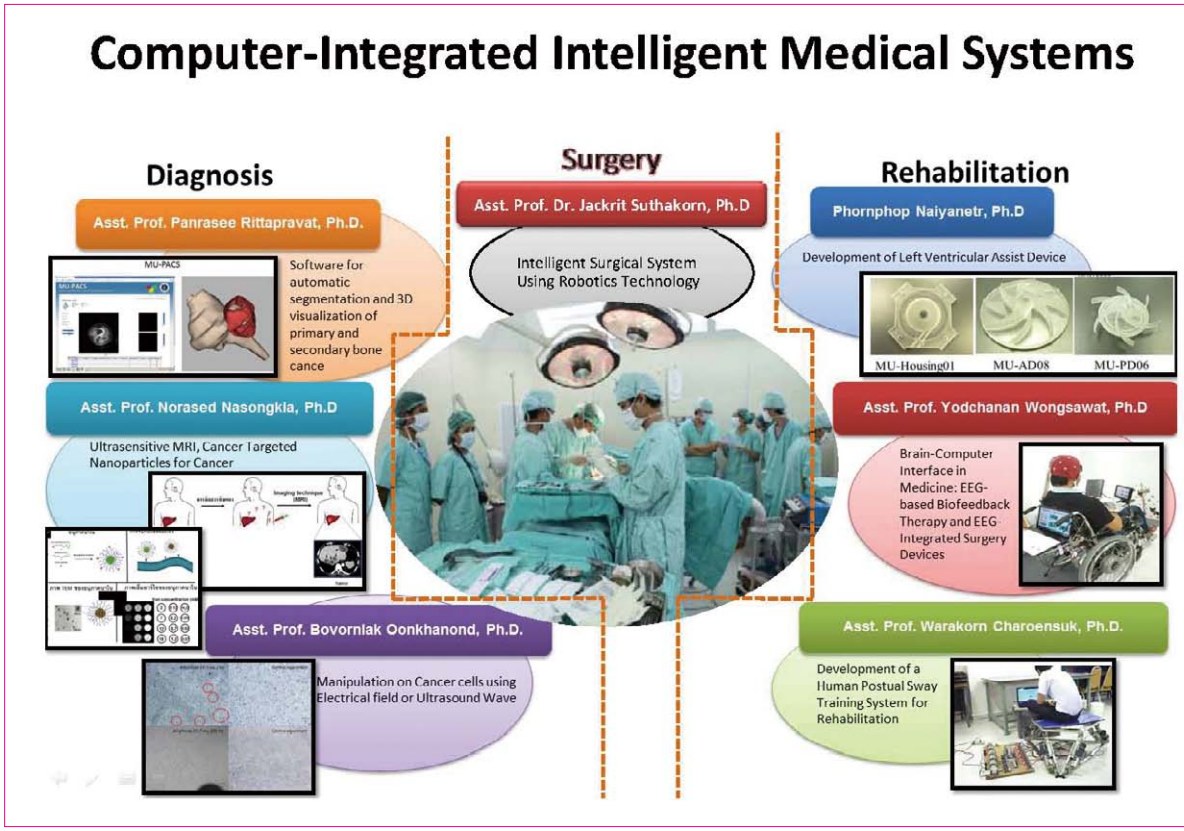
1.Bio-Signal and Image Processing
2.Tissue Engineering and Drug Delivery Systems
3.Advanced Computing in Medicine
4.Rehabilitation Engineering and Artificial Organs
5. Robotics and Computer-Integrated Surgery
6. Biosensors and Instrumentations

(information from Page 22 to 24 compiled according to the report of Dr. Yodchanan Wongsawat on behalf of the Thai Biomedical Engineering Society, at the Beijing meeting of the IFMBE Working Group of Asia Pacific Activities, 28th May 2012.)

Recent BME Activities in Thailand

1st BME Open House, 2011, 2nd BME Open House, 2012 Student Competition
Place: Digital Gateway Mall, Siam Square, Bangkok


Research Laboratories
BART LAB
Surgical
Navigation
BART LAB develops surgical navigation systems to assist surgeons for better performance.
BioNEDD
LAB
Biopolymers and Nanotechnology for Cancer Chemotheraphy
BCI LAB
Exploring Your Mind.
Toward the future, cutting edge technology of brain-computer interface (BCI) will be commercially employed for accidental vigilance, rehabilitation and smart medical treatment.
AIM LAB
Artifical inteligent techniques to improve medical diagnosis, prognosis and treatments
Artificial Organ LAB
STEN LAB
Tissue engineering aplications using silk scafold techniques.


Computer-Integrated Intelligent Medical Systems
Diagnosis
Asst. Prof. Panrasee Rittapravat, Ph.D.
MU-PACS
Software for automatic segmentation and 3D visualization of primary and secondary bone cance
Asst. Prof. Norased Nasongkla, Ph.D
Ultrasensitive MRI, Cancer Targeted Nanoparticles for Cancer
Asst. Prof. Bovornlak Oonkhanond, Ph.D.
Manipulation on Cancer cells using Electrical field or Ultrasound Wave
Surgery
Asst. Prof. Dr. Jackrit Suthakorn, Ph.D
Intelligent Surgical System Using Robotics Technology
Rehabilitation
Phornphop Naiyanetr, Ph.D
Development of Left Ventricular Assist Device
MU-Housing01
MU-AD08
MU-PD06
Asst. Prof. Yodchanan Wongsawat, Ph.D
Brain-Computer Interface in Medicine: EEG-based Biofeedback Therapy and EEG-Integrated Surgery Devices
Asst. Prof. Warakorn Charoensuk, Ph.D.
Development of a Human Postual Sway Training System for Rehabilitation

IFMBE News
International Federation of Medical and Biological Engineering

Development of Clinical Engineer Certification in China

Zhou Dan, Ying Jun

Zhou Dan
IFMBE CED member

Dr.Zhou Dan is an expert of clinical engineering and hospital management. He engaged in hospital operation management for a long time, and his major studies include the construction of digital hospital and hospital performance analysis in the information environments. He is adjunct professor of Zhejiang University and is certified by the International Clinical Engineer. He has published 12 articles, and now is working for 6 national research projects and acting as chief expert of the National High Technology Research and Development Program of China.

Since the 1960s, a large number of new high-tech medical devices were widely used in hospital, which greatly improved the level of diagnosis and treatment and made great contribution to the human health. At the same time, occurrence of medical incidents have increased because of poor maintenance and defects of medical equipment, especially for some life support medical equipments, such as ventilators, artificial heart-lung machine, blood dialysis machine et al. Good maintenance condition and proper use of these equipments are related to the patients' safety. Qualified clinical engineer (CE) groups in hospital turned to be a key factor to ensure the safety, effectiveness, and reliability issues of equipments. In the early 1970s, ACCE / EMBS / ASHE / AAMI and other academic associations have established professional certification system in USA. This system provides post certification to clinical engineer or clinical engineering technician in various medical institutions. Now, there are more than 3000 qualified clinical engineers, and tens of thousands qualified clinical engineering technicians in USA. Also, Japan has established national qualification examination system for clinical engineering staffs. So far, more than 10,000 people passed the exam and were certified as Clinical Engineering Technician.

In China, hospitals are not yet set up the occupation positions for CE, and the clinical engineering staffs serving in the medical institutions lack the appropriate professional qualification certification and occupation access. Clinical engineering technical personnel are serious insufficiency, while numbers of medical devices are dramatically increased. This situation causes serious imbalance. In large hospitals, the number of engineering technical personnel only account for 5% of all health care staffs while the account is for 15%-20% in USA. Each equipment which price is over 10 million RMB (160,000 $) is maintained by no more than one technician on average. The clinical engineering technician with Bachelor degree or above only accounted for 37%, which is far lower than the level in developed countries. Human resources of medical engineering in China cannot keep up with the development of new technology and equipment.

In order to promote the construction of clinical engineer training system to international standards, China begun to explore the way to establish clinical engineer certification system in the last ten years. First, the international clinical engineer certification was introduced. In 2005, Medical Engineering Division of Chinese Medical Association hosted the first international clinical engineer certification advanced training courses and certification examination. With the expansion of the influence of certification examination, the division totally held six sessions from 2005 to 2012. We invited several international senior specialists to conduct lectures and exams, including professor David Yadin who is the former chairman of the American Association of Clinical Engineering (ACCE), and professor William A. Hyman, professor James Wear, professor Elliot B. Sloane who are also experience in clinical engineering. The form and content of examination are with international standards. In order to evaluate the comprehensive capacity of candidate, the certification examination consists of two parts, written and interview in English, all the questions come from the American Clinical Engineer Certification Examination Bank.

In the six sessions of training class, there were more than 700 clinical engineering technical staffs from hospitals and universities participate the examination, 219 people passed and awarded an international clinical engineer certification. The certified person cover 18 provinces and 90 hospitals cover whole nation. Most of them are the responsible person of medical engineering department and 37 percent person are senior professional titles.

In the past seven years, China always made efforts to establish own clinical engineering certification system. Based on the success

The scene of clinical engineer participants training by professor David Yadin in 2012

of international clinical engineer certification, in October 2012, The process of clinical engineer qualification in China took a new important step forward. The Medical Engineering Division carried out Chinese Registered Clinical Engineer Certification training and examination. Candidates were the junior engineering employee in large hospitals or newly graduates who major in medical engineering. All over the country, there are 20 million people who is qualified to participate in the examination. Registered clinical engineer certification is the basic admission exam to the occupational qualification of clinical engineering. The examination focuses on the basic theory and skills, and consists of theoretical exam and practical test. We have established the Chinese exam question bank and the theoretical exam questions are randomly selected from the bank. The practical test requires candidates to make site operation include repair, measure, maintenances and so on. An expert committee with clinical engineering experts selected around the country evaluates the ability of every candidate and give the final determine. In 2012, 176 people enrolled the examination, 58 people passed the exam and obtain a registered clinical engineer certification. Contrast with international clinical engineer certification, registered clinical engineer certification cover a wide range of junior medical engineering practitioners. In the future, the international clinical engineer certification will mostly for the senior engineer who will have engaged in clinical engineering for more than ten years. In China, there are about 500 people qualified to participate in the examination. China set up such grading certification system including international clinical engineers and registered engineers. This system contributes to establish continue education system of biomedical engineering employees and effectively improve the quantity and quality of CE. The next step, Medical Engineering Division plan to recommend to the government and establish officially authorized clinical engineer training and certification system.

The scene of written examination in international clinical engineer certification in 2012

Interview in international clinical engineer certification in 2012

Reports on the Development of Traditional Chinese Medicine Engineering

Huayuan Yang, Guantao Wang, Yi Zhu

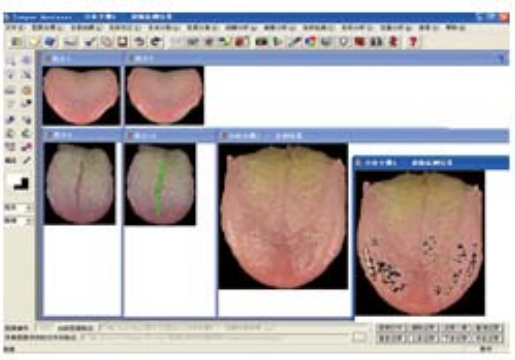
Dr.Huayuan Yang
Shanghai University of Traditional Chinese Medicine

I. Overview

Traditional Chinese Medicine (TCM) Engineering was first established in the 1950s in China. The relevant researches are conducted by the basic theories of TCM with engineering thoughts and advanced modern science and technology. TCM Engineering has made a close integration of the basic disciplines and methods of modern science and technology, engineering mechanics with TCM to provide the various means to clinical diagnosis and the prevention and treatment of diseases by developing the basic theories, researches on treatment and diagnosis technologies.

The application of methods and technologies in TCM Engineering encouraged the advances of TCM in the following aspects, such as the four methods of diagnosis (inspection, inquiry, auscultation and smelling, pulse-taking), therapeutic methods, meridian detection, education etc. Pulse-taking diagnosis research is mainly focused on pulse-taking diagnostic imagers. Their core sensors include pressure, photoelectric, ultrasonic Doppler-in microphone and other sensors. The analytic methods of pulse graph characteristics mainly include time-domain analysis, frequency-domain analysis, transform-domain analysis, mathematical modeling methods and nonlinear dynamics methods, wavelet transform analysis and HHT signal analysis analytic method, etc.

A typical Tongue diagnosis instrument



Results of Tongue images

Simulated acupuncture instrument for training manipulation

Tongue inspection research is concentrated on the quantitative analysis and differentiation of tongue body, tongue moss color, tongue nature. Digital image acquisition

tongue expression, quantization of moss-colored tongue color criterion, analysis of tongue texture and differentiation of unique texture shapes have become hot spots of tongue research. Meridian diagnosis methods are mainly centered on resistance testing of acupuncture points. The unique changes of resistance testing of acupuncture points tested by acupuncture point resistance testing machine really have some specificities and a reference value. The test results of acupuncture points can also be used in auxiliary diagnosis. The relevant treatment device is a fast-growing aspect, mainly including electro-acupuncture instruments and moxibustion instruments.

Electro-acupuncture devices usedclinically as early as in the 1950s have embraced a rapid development to now, especially since acupuncture anesthesia researches have been carried out in our country. In recent years, some researchers have developed intelligent electro-acupuncture treatment instruments, music electro-acupuncture treatment instruments, process control electro-acupuncture treatment instruments, infrared remote control electro-acupuncture devices, acupuncture manipulation treatment instruments and meridian-derivative instruments with the help of high technologies.

Starting from the 1960s, some researchers have used modern science and technologies to develop various kinds of moxibustion treatment instruments in accordance with the conventional moxibustion theories. The types of moxibustion treatment instruments include infrared moxibustion instrument, electric moxibustion instrument, imitation moxibustion instrument, etc. With respect to the research and development of teaching equipments, digital meridians and acupuncture points models are widely used in the elementary teaching. At the same time, pulse model, tongue expression maps and other models have been gradually applied in the diagnosis teaching. In addition, there have been a number of specialized experiment instruments which have been widely used in clinical acupuncture, teaching and scientific research, including meridian electrical characteristics detectors, meridian balance testing instruments, acu-

puncture point thermometers, acupuncture point probe.

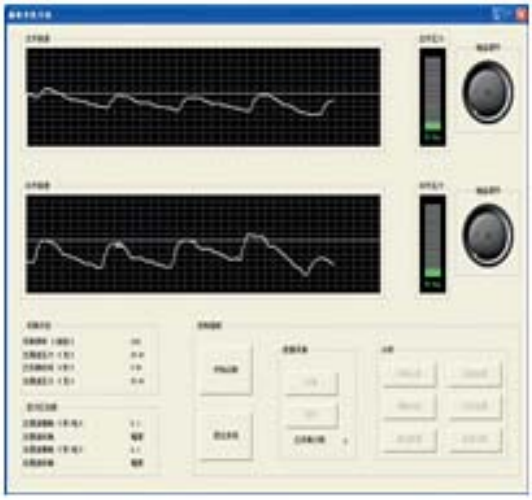
In past five years, Chinese disciplines have made great accomplishments. Three international symposiums on TCM Engineering and annual meetings on acupuncture and moxibustion instruments have been held consecutively to promote the disciplinal research level. A symposium and an exhibition on TCM diagnosis and treatment instruments have been held respectively by the State Administration Bureau of Traditional Chinese Medicine in 2008 and 2010 to promote the development of the relevant medical instruments. At present, the establishment of research institutes in Shanghai and Tianjin will play an important role in the advances of the disciplines.

The application of TCM Engineering methods and techniques in the researches has produced an extensive and far-reaching effect. The application of a large number of the devices has promoted the modernization of diagnosis and treatment techniques. However, undoubtedly, the development of these disciplines will inevitably confront with various problems.

II. Issues Related to the Development of TCM Engineering

After several decades of development, TCM Engineering has become a vibrant emerging cross-disciplinary subject. So far, the main problems for further research are as follows: how to use information technologies to study on the Yin-Yang theory and the Five Phases Theory; how to integrate model methods which are used in the biomedical research to the basic research field of TCM; how to organically combine the mathematical model of fuzzy feature set with vague features in TCM and so on. Huge painstaking groundwork should be established by the researchers to solve these problems. Hence, the establishment of digitalization information network and

Pulse diagnosis instrument



Pulse waveform results

sharing platform will boost the development of TCM diagnostic techniques.

The application of TCM Engineering has relatively made breakthroughs in the teaching field. For instance, the establishment of pulse models, tongue expression maps, computer expert systems, digital human meridian acupuncture point models and other instruments are already widely used. The devices has not only greatly improved the existing deficiencies, but also made it easier for more people to touch and understand TCM, thus making a positive contribution to the popularity of TCM and the improvement of the teaching quality and contents. But so far, these teaching instruments simply reflect the “shape“ rather than the “essence“ of TCM. Hopefully, with the enlargement of the disciplines and the input of new technologies, the teaching devices with more abundant content will be much closer to the laws of TCM.

Regarding information and standard research, the most important manifestation of our disciplines lies in the research and application of diagnosis and treatment instruments. However, the technical standards should be established to regulate the application of diagnosis and treatment instruments. At present, due to the lack of technical standards, the following urgent problems in the development of the relevant diagnosis and treatment instruments are majorly expected to be solved issues, such as different confused standards, lack of information sharing, limited information collection. The establishment of corresponding technical standard systems can enable the healthy development of the whole industry.

The development of TCM Engineering disciplines is still facing human resources problems in each TCM research and clinical center. As a cross-disciplinary subject, the development has an urgent need of two talents. One are professionals equipped with TCM knowledge and a comprehensive understanding of modern science and technology after learning to seek appropriate modern science and technology and theories for the development of medical science at an appropriate time. Another are researchers with a

Scene of acupuncture anesthesia

background of modern science and engineering and a general understanding of the most basic related theories so that they can use the basic disciplinary thoughts to carry out some relative researches when entering the research fields. The combination of these twokinds of talents will take the advantages of both TCM and modern science and technology to promote the development of the disciplines. The formation of a cross-disciplinary team of different professional backgrounds is the basis for the future development.

The advances with interdisciplinary strengths can be fulfilled by establishing research platforms aimed at advanced level both home and abroad, building research TCM bases with academic advantages, continuously broadening academic subject areas, seeking new growth sources as well as promoting the translation of scientific research results and cultivating inter-disciplinary talents. The leapfrog development is sure to be achieved by promoting the modernization, standardization, objection, industrialization of TCM, keeping in the disciplinary frontier and constant innovation. Meanwhile, we should notice that the future is full of challenges and opportunities.

Currently, building exchange platforms for international cooperation is another improtant issue. Further international cooperation based on the establishment and improvement of the relevant laboratories, talent-training bases, and industrial bases should be deepened to seize the high technological ground. To establish joint experiment laboratories and research centers with great international influence is expected to facilitate a wide and diverse international collaborative research and academic exchanges in the world.

III Summary

TCM is a specialty of the medical science in China. It is also an important part of the hygiene course in this country. And it has assumed an important task for disease prevention and control and protection of people's health. At present, as science and technology advances day and night, it provides excellent opportunities and severe challenges for TCM. The aforementioned circumstances witnessed the birth of our disciplines providing the basis for studying TCM and tools and instruments for the modernization of TCM. Centered "the innovation and development of TCM " as its theme while maintaining and developing the advantages of TCM as its premise, our disciplines aiming at promoting the modern TCM industry will continuiously develop diagnosis and treatment instruments with independent intellectual property rights and a modern science and technology innovation system to improve the capacity and the level of treatment and health care.

COMING EVENT

Equip'aid. Sharing for better healthcare

November 19 & 20 2013, Chamonix Mont-Blanc, France

The non-profit organisation HUMATEM, the European Hospital and Healthcare Federation (HOPE) and the French Hospital Federation (FHF), supported by the World Health Organisation (WHO) are organising **Equip'aid, an international conference devoted to the improvement of medical equipment support projects for healthcare facilities in the field of international aid.** The conference will be held on 19th and 20th November 2013 in Chamonix Mont-Blanc, in France and will be followed by the Second WHO Global Forum on Medical Devices from 22nd to 24thNovember 2013, in Geneva.

The Equip'aid conference comes at the end of a three year programme driven by HUMATEM and co-financed by the European Union "Strengthening cooperation tools and structuring dialogue between donation stakeholders in the provision of medical equipment" (DCI-NSA/2009/205-811), and will unite 250 participants from northern countries, countries in transition and developing countries.

Access to healthcare technologies in developing countries through medical equipment donation and support projects, is a key contributor to improving world health issues. The acquisition, management and use of medical equipment which is of good quality, safe and compatible with the environment in which it is used, are of prime importance to all stakeholders in this field. Given that the majority of donated medical devices installed in developing countries are not in working order (source WHO) there is great potential for improvement in the overall approach and quality processes involved in medical equipment donation programmes.

Equal access to health technologies is fundamental for improving world health

For over 14 years, HUMATEM, committed to enhancing the practices of healthcare groups and international aid organisations, has provided services and tools to assist stakehold-

ers in medical equipment support projects across various domains such as: donating and receiving equipment with a specific focus on improving the match between supply and demand, ensuring its proper working order, and training teams from international aid or-

Ensuring that equipment is adapted and functions correctly is crucial

ganisations on the methodology for medical equipment support projects. This can include topics such as carrying out a preliminary assessment, planning, project implementation and evaluation, as well as highlighting the difficulties or issues they are likely to face. HUMATEM provides an exchange platform based on three complementary services:
1) Coordination of medical device donation and receipt with access to an extensive database, 2) A resource centre for donors and receivers, offering tools, aids, and access to workshops and training, and 3) A collaborative biomedical network BIOMEDON, for uninstallation/removal of medical equipment, including performance controls, recalibration, minor repairs and ordering accessories or spare parts, etc.

In line with this goal of improving medical equipment support projects, the Equip'aid conference will provide a platform for exchange, discussion and best practice share. In more detail, the objectives of this first international meeting of reference are to:

• Share information and experience, by promoting dialogue between all stakeholders involved in medical equipment support projects;
• Identify synergies by examining the various practices and policies involved in the transfer and set-up of medical equipment;
• Facilitate research work and transversal thinking on issues affecting this sector, with the aim of improving practices over time;
• Develop a common vision around the axis chosen for this first edition "Sharing for better healthcare".

The two-day conference will offer various formats for exchange and project advancement, through plenary sessions, round tables, themed workshops, poster presentations and documentary screenings, as well as a networking zone and resource area.

The topics covered during the two-day conference will include:

- Different forms of cooperation in medical equipment support projects (bilateral, between territorial authorities, hospitals, associations…);
- Varying contexts of intervention (emergency, post-emergency and development, rural and urban, public and private...);

- Importance of medical equipment donations within the framework of the WHO Global Initiative on Health Technologies;
- Legal aspects affecting transfers (directives, laws, regulations…);
- Good practice for successful transfer & installation, overcoming common obstacles;
- Best-practice share for medical equipment support projects (tools, resources, exchange platforms, innovative solutions);
- Importance of training for optimum use and maintenance of medical equipment;
- Impact of medical equipment support projects on the management of healthcare facilities (financial impact, costs, maintenance policies, biomedical waste management...);
- Particular needs and constraints of specific medical fields: surgery, anaesthesia/intensive care, laboratory, dialysis, ophthalmology, oral healthcare, technical aids for disabled people, hospital furniture, etc.

All biomedical engineers and technicians interested in by any of these topics are welcome to attend the conference.

The Equip'aid conference intends to bring together for the first time, all parties involved in medical equipment support projects within the scope of international aid:

- Civil society organisations from the Northern countries, countries in transition and developing countries (associations, International Aid Organisations, International Migrant Aid Organisations, NGOs, etc.);
- Territorial authorities engaged in cooperation programs;
- Healthcare facilities involved in hospital cooperation programs and/or donors or beneficiaries/recipients of medical equipment;
- Companies in the healthcare sector;
- Organisations and their resource teams & experts (support networks, biomedical technicians and engineers, medical and paramedical personnel, researchers, economists, consultants, etc.);
- Training institutes and students;
- International Institutions (WHO, European Commission, etc.);
- Funding agencies;
- Government representatives;
- State representatives.

Sharing for better healthcare

The conference will be held in English and French, with simultaneous translation of most sessions.

More information and registration details are available on: www.equipaid.org

The 15th International Conference on Biomedical Engineering (ICBME 2013) will convene once again in tropical Singapore this December.

This year, the conference programme is structured based on the following themes and related topics:

- Bioimaging and Biosignals
- Biomaterials and Tissue Engineering
- Biomechanics and Computational Bioengineering
- Biomedical Devices and Biomedical Instrumentation
- Biomedical Robotics and Surgical Technology
- Neuroengineering and Rehabilitation Engineering
- Special Topics
-

Visit www.icbme.org for more details

BES-SEC Design Award 2013

Jointly organized by the Biomedical Engineering Society (Singapore) (BES) and the Society of Engineers for the Community (SEC), the design award competition focus on the design of a low-cost medical device to improve healthcare in resource-scarce communities. Open to all bona-fide students with a top prize of SGD 1,500.

Young Investigator Award

We are also inviting submission of high quality papers for the 2013 Young Investigator Award. The Award recognizes the efforts and contributions of researchers in their early career who have demonstrated creativity and research excellence in biomedical engineering.

Special extension of submission deadline for IFMBE delegates to 12 July 2013

Submit online now!

Paper Publication

Authors of accepted abstracts will be invited to submit their final papers, which will be published by Springer in the IFMBE Proceedings Series.

Organised by

BES SINGAPORE
Biomedical Engineering Society (Singapore)

NUS National University of Singapore
Department of Bioengineering

FINAL CALL FOR PAPERS

The International Conference on Health Informatics (ICHI) is a new special topic conference initiative by the International Federation of Medical and Biological Engineering (IFMBE) - the world largest organization focusing on biomedical engineering. The inaugural of the IFMBE-ICHI2013 will be held in **Vilamoura, Portugal** on **7-9 November, 2013.** The main theme of the IFMBE-ICHI2013 is "***Integrating Information and Communication Technologies with Biomedicine for Global Health***".

Health informatics becomes a fast-evolving interdisciplinary field and advancing health informatics has been identified as a grand challenge for engineering in the 21st century. Maintaining and improving human health in this century will require systems engineering approaches to translate care practices and integrate local, regional, national, and global health information networks. The ICHI2013 will provide a unique forum to examine enabling technologies of sensors, devices and systems that optimize the acquisition, transmission, processing, storage, retrieval of biomedical and health information as well as to report novel clinical applications of health information systems and the deployment of m-Health, e-Health, u-Health, p-Health and Telemedicine. Members of the biomedical, life sciences and engineering communities are encouraged to attend this highly multidisciplinary meeting.

IFMBE-ICHI2013 SPECIAL FEATURES:

* Mini-Symposia Proposed: **1)** Towards Unobtrusive and Wearable Blood Pressure Measurements; **2)** Monitoring and Screening of Vulnerable Patients with Acute Cardiovascular Diseases, and **3)** Photo-acoustic Imaging and its Applications.
* Selected papers from this conference will be published in a special issue on IEEE Journal of Biomedical and Health Informatics (J-BHI) which was retitled from IEEE Transactions on Information Technology in Biomedicine in 2013.
* IFMBE Young Investigator Award: http://www.ichi2013.org/YoungInvestigator.aspx

INVITED KEYNOTE SPEAKERS *(Alphabetic Order)*

Dr. Joerg Habetha *Philips Research, Netherlands*
Dr. Shankar Krishnan *Wentworth Institute of Technology, Boston, USA*
Dr. Zhi-Pei Liang *University of Illinois, USA*
Dr. Xiaochuan Pan *University of Chicago, USA*
Dr. Roderic Pettigrew *National Institute of Biomedical Imaging and Bioengineering, USA*
Dr. Niilo Saranummi *VTT Technical Research Centre of Finland, Finland*
Dr. Bruce Wheeler *University of Florida, USA*
Dr. Guang-Zhong Yang *Imperial College London, London, UK*

IMPORTANT DATES

* Extended Online Paper Submission Deadline: ***Aug. 30, 2013***
* Extended Student Paper Competition Deadline: ***Aug. 30, 2013***
* Notification of Acceptance: ***Sept. 10, 2013***
* Conference Dates: ***Nov. 7-9, 2013***

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ICHI2013 CONFERENCE WEBSITE:
http://www.ichi2013.org/

ICHI 2013

Vilamoura, Portugal
November 7-9, 2013

IFMBE International Conference on

Health Informatics

Theme: "Integrating Information and Communication Technologies with Biomedicine for Global Health"

IFMBE

TRACKS and TOPICS covered by the ICHI 2013 include:

1) Information Acquisition
Chair: *Toshiyo Tamura*
Co-Chairs: *Guy Dumont, Vedran Bilas*
- Unobtrusive sensing
- Wearable and implantable systems
- Body nets, body sensor networks, body area networks
- Energy harvesting technologies
- BioMEMS, Biochips, Medical IC and Health chips
- Point-of-Care Technologies (POCTs)
- Multimodal acquisition

2) Information Transmission
Chair: *Majid Sarrafzadeh*
Co-Chairs: *Timo Jämsä, Paulo Mendes*
- Health information security and privacy
- Low power wireless IC design
- Wireless health end-to-end quality of service
- Internet and web solutions for healthcare delivery
- Interoperability and connectivity
- Picture archive and communication systems (PACS)
- Internet of things (IoT) for health, healthcare, biomedicine and life sciences

3) Information Processing
Chair: *Sergio Cerutti*
Co-Chairs: *Constantinos Pattichis, Miguel Coimbra*
- Multi-scale modeling and information fusion
- Cloudy computing and mobile computing for healthcare
- Healthcare big-data
- Bio-health data mining

4) Information Storage and Retrieval
Co-Chairs: *Nikolaos Maglaveras*
Günter Schreier
- Context-aware retrieval
- Electronic health records

5) Informatics in Biological Systems
Chair: *Lin-Tao Cai*
Co-Chairs: *Nazamettin Aydin, Huseyin Seker, Joel Arrais*
- Genomics, proteomics, metabolomics and trans-omics
- Data mining in omics study
- Next generation genome sequencing
- Epigenetic and functional genomics
- Personalized biomarkers
- Computational biology and systems biology
- Biomarker detection
- Bioinformatics for health

6) Cardiovascular Health Informatics
Chair: *Steffen Leonhardt*
Co-Chairs: *Dimitrios Fotiadis, Jorge Henriques*
- Cardiovascular modeling
- Coronary blood flow dynamics and measurement
- Applications in vascular diseases
- Early diagnostic and monitoring of vulnerable patients
- Characterizations of blood plaque

7) Neural Informatics
Chair: *Nitish Thakor*
Co-Chairs: *Guang-Lin Li, Metin Akay*
- Neuro-informatics
- Assistive technologies
- Neural systems and rehabilitation technologies
- Neural modeling
- Brain-computer interfacing and human–computer interfacing

8) Biomedical Imaging Informatics
Chair: *Rui Bernardes*
Co-Chairs: *Sotirios A. Tsaftaris, Joao Sanches*
- Real-time imaging
- Multimodal imaging
- Molecular imaging
- Image and video data compression
- Information visualization
- Virtual reality in biomedicine and image-guided surgery

9) Deployment of m-Health and Telemedicine
Chair: *Maria Teresa Arredondo*
Co-Chairs: *Harald Reiter, Kwang Suk Park, João Paulo Cunha*
- P-health, m-health, u-health, and e-health systems
- Distributed health information system
- Deployment Issues

10) Public Health Informatics and Other Applications
Chair: *Luis Kun*
Co-Chairs: *Jimmy Liu Jiang, Leandro Pecchia*
- Applications in the early diagnosis and early treatment of cancers
- Response in public health emergencies
- Against a pandemic such as flu or some other viral threat
- Informatics system against biological weapons and bio-chemical terror
- Environmental health
- Ambient assisted living, smart homes and community healthcare systems
- Therapy and drug delivery
- Bio-inspired robotics and biomimics
- Health Information Technologies Design Assessment & Management

ABOUT THE CITY *Vilamoura*

Vilamoura is the largest luxury tourist complex in Europe, covering some 20 km² of land. It is located in the municipality of Loulé, in the Algarve, Portugal. Its boundaries lie within the parish of Quarteira. Vilamoura is a purpose-built resort and marina which was started from scratch by Cupertino de Miranda, a wealthy banker from Porto, in 1974 and is still expanding outwards from the marine center. The resort is located 23 km west along the coast from Faro and is at 266 kilometers south of Lisbon. The nearest airport is at Faro.

CONTACT INFORMATIONS

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Welcome to Tainan, Taiwan and welcome to the 9th Asian-Pacific Conference on Medical and Biological Engineering (APCMBE 2014)

Oct. 9-12, 2014

The 9th Asian-Pacific Conference on Medical and Biological Engineering (APCMBE 2014) will be held in Tainan, Taiwan at National Cheng Kung University from October 9 to 12, 2014. The Taiwanese Society of Biomedical Engineering (TSBME) is privileged to organize this international conference affiliated with International Federation on Medical and Biological Engineering (IFMBE). The TSBME has continuously held the Annual Conference on Biomedical Engineering and Technologies (ACBET) in Taiwan since its founding in 1980. Each year, the ACBET has attracted over 1000 attendees. To further internationalize the ACBET, TSBME will commence the first biennial Global Conference on Biomedical Engineering and Technology (1st GCBMET) jointly with APCMBE 2014. It is our great hope that this joint conference will bring more closely together the researchers, students, and communities around the world in order to share their latest research works and innovative developments in biomedical engineering (BME).

Tainan is the oldest city in Taiwan. This city is full of Taiwanese culture and heritage and is especially famous for historical architecture and local delicacies. Previously, Taiwan was known to the Portuguese as *Ilha Formosa* which means "beautiful island." Therefore, in addition to gathering with academic researchers and scholars, we hope all attendees will have the opportunity to enjoy an island hiatus with beautiful beaches, mountains, cultural events and foods. Welcome to Tainan and welcome to APCMBE 2014.

Fong-Chin Su, General Chair
Shyh-Hau Wang, Secretary General
Ming-Long Yeh, Vice Secretary General

Conference Dates: October 9 - 12, 2014
Conference Venue: National Cheng Kung University, Tainan, TAIWAN
Language: English
Website: http://conf.ncku.edu.tw/apcmbe9/

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Host Institutions

- Taiwanese Society of Biomedical Engineering
- Medical Device Innovation Center, National Cheng Kung University
- Department of Biomedical Engineering, National Cheng Kung University

Supporting Institution

- National Cheng Kung University

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