

## *Special Report*

# **Biomedical & Pharmaceutical Engineering Week (BPE Week) 2006, Singapore**

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This is a special report on the Biomedical & Pharmaceutical Engineering (BPE) Week held from 8 to 15 December 2006. This report reviews the activities during the week and acknowledges the key supporting elements to its success.

BPE Week 2006 was a week-long series of bioengineering-focused conference, lectures, workshops and socials organized by the Nanyang Technological University's (NTU) BPE Cluster. The primary aim was to facilitate technology-driven patient care and biomedical engineering to a higher level through forums, visits, and networking. Major co-organizers for the BPE Week 2006 included Singapore General Hospital (SGH), Institute of Electrical and Electronics Engineers (IEEE), Institution of Engineering and Technology (IET), Engineering in Medicine and Biology Society (EMBS), Agency for Science, Technology and Research (A\*STAR) Singapore-University of Washington Alliance (SUWA), and the Institution of Engineers Singapore (IES). This event was supported by the Singapore Economic Development Board (EDB) and Singapore Tourism Board (STB).

The BPE Week 2006 brought together a total of over 450 participants from academia, industry, professional societies, government agencies and members of the public. Table 1 summarizes the key activities organized.

**Table 1: Summary of activities organized for BPE Week 2006**

<b>S/No</b>	<b>Name of Activity</b>	<b>Day &amp; Dates</b>
1	NTU-SGH Graduate Student Symposium	8 Dec 2006
2	International Conference on Biomedical & Pharmaceutical Engineering	11 - 13 Dec 2006
3	Biomedical & Pharmaceutical Engineering Dinner Lectures	12 Dec 2006
4	Biomedical Golf Social / BPEC Open House (Conf. Participants)	14 Dec 2006
5	Biomedical Engineering Research Centre Open House (Public)	15 Dec 2006

## 1 NTU-SGH Graduate Student Symposium

The NTU-SGH Graduate Student Symposium was held on the evening of 8 December 2006 at the Postgraduate Medical Institute (PGMI), SGH. This event created valuable opportunities for graduate students to present their biomedical engineering related research, particularly projects in partnership with SGH. The event also marked the successful on-going collaborations between NTU and SGH, highlighting several of their project achievements. The event saw over 80 participants where 16 scientific papers were presented.

A spread of biomedical engineering topics were covered: biomolecular marker investigations, bioimaging techniques, a prognostic tool for hemostasis and genetic complementary learning, high intensity ultrasound phase array for surgical applications, cross-correlation of DNA sequences using hypercomplex number encoding, intronless genes in eukaryotic genomes, dynamic systems model of mechanotransduction response in an osteoporotic bone, rapid portable detection of tuberculosis and systems engineering in hospital and healthcare management. The topics and presentations received excellent feedback from industry and researchers and reflected the maturing standards of projects carried out through the NTU-SGH Medical Bioengineering Initiative (NS-MBI).

The welcome address was delivered by event chairman, A/P Chan Yew Weng, Director of SGH-PGMI (Figure 1).



**Figure 1:** A/P Chan Yew Weng giving the welcome address



**Figure 2:** Session Chairs from NTU (A/P Franz Konstantin) & SGH (Dr Denny Lie)

In summary, the NTU-SGH Graduate Student Symposium provided an important platform where medical and engineering students, medical practitioners and engineering researchers can share medical problems and solutions, discuss ideas, theories, technology status, and explore further work in the continued interest in improving patient care and disease control. This successful symposium also symbolizes the ongoing team education and research alliance between NTU and SGH. Appendix A contains the symposium program, including the presentation titles and presenting teams.

## 2 International Conference on Biomedical & Pharmaceutical Engineering (ICBPE) 2006

The ICBPE 2006 was held from 11 to 13 December 2006 at the Orchard Hotel, Singapore. This event was a forum where international researchers and scientists from an expanded spectrum of biomedical and pharmaceutical engineering research presented and discussed novel methodologies and cutting-edge solutions to meet the emerging trends in healthcare.

The BPE builds on the core expertise of biomedical engineering which concerns with the delivery of medical treatment and therapy; development and manufacture of prostheses, medical devices and diagnostic devices; with the pharmaceutical engineering that emphasizes on the use of drugs, analysis of drugs, biomarkers, related materials and endogenous compounds and their processing. The synergy of expertise in both groups is important for future healthcare demands.

This grand event was well received with over 250 international and local delegates from over 25 other countries including Australia, Belgium, Canada, China, Germany, Hong Kong SAR, India, Indonesia, Iran, Ireland, Japan, Korea, Lebanon, Macau SAR, Malaysia, Morocco, Netherlands, New Zealand, Romania, Singapore, Sweden, Taiwan, Thailand, Turkey, United Kingdom, United States.

The ICBPE 2006 was organized by NTU, SGH and IEEE as the main stakeholders, as well as EMBS, IET, IES and SUWA.

Sponsors to the ICBPE 2006 included Association for Medical and Bio-Informatics, Singapore (AMBIS), CAD-IT Consultants (Asia) Pte Ltd, Contract Edit-Ads, EINST Technology Pte Ltd, Hewlett Packard (Singapore) Pte Ltd, LASER 21 Pte Ltd, John Wiley & Sons (Asia) Pte Ltd, Olympus Singapore Pte Ltd, Singapore Tourism Board, Statworks (Singapore) Pte Ltd, Techsource Systems Pte Ltd and Zugo Photonics Pte Ltd. The event was also supported by the EDB and SGH-PGMI.

The conference was opened with a grand opening ceremony graced by the Guest-of-Honor, Professor Er Meng Hwa, Acting Provost, NTU (Figure 3). The opening ceremony was well attended with a number of Chief Executive Officers and key personalities from the biomedical industry, government officials and academia.



**Figure 3:** Prof Er Meng Hwa, Guest-Of-Honor, delivering the opening speech



**Figure 4:** A/P Kwoh Chee Keong, Conference Chair, delivering the opening speech



**Figure 5:** More than 250 participants from over 25 countries in attendance



**Figure 6:** Montage of ICBPE 2006 participants

Endorsing the ICBPE 2006 were 14 distinguished plenary speakers who were each world renowned experts in their respective fields. The plenary sessions were key parts of the ICBPE programme aimed to excite, stimulate, and provide informative research directions.



**Figure 7:** Plenary speakers Prof Stephen Wong (Harvard Medical School, USA) and Prof Antonios G. Mikos (Rice University, USA)



**Figure 8:** Plenary speaker Prof Gerald Pollack (University of Washington, USA) interacting with ICBPE participants

In addition to the plenary speakers, invited biomedical industrial speakers and another 130 selected papers were also presented during the ICBPE. All these added to the grandeur of the event that provided excellent opportunities for academics, scientists, industrialists and research students to exchange ideas and enhance learning experiences.

The ICBPE also drew substantial industrial support from sponsored exhibits (Figure 9). The feedback from these sponsors and exhibitors were both positive and encouraging in that their expected interaction with the conference delegates was exceedingly surpassed.



**Figure 9:** Interactions between industrial exhibitors and ICBPE delegates

In summary, the ICBPE 2006 was a key success and met all its objectives. The ICBPE 2006 had established and renewed important international alliances to explore key technological issues facing patient care and disease control.

### **3 Biomedical & Pharmaceutical Engineering Dinner Lectures**

The Biomedical & Pharmaceutical Engineering Dinner Lectures was a public outreach event held on 12 December 2006 at the Grand Ballroom, Orchard Hotel. The event was jointly organized by NTU's BPE Cluster, SGH, and the IES. The event's Guest-of-Honor was Brigadier General (NS) Dr Wong Yue Sie, Chairman of the Division of Ambulatory and Clinical Support Services, and Acting Chairman Medical Board, SGH.

The Dinner Lectures also marked a year-end celebration for the BPE Cluster. The event was also honored with the attendance of Prof Er Meng Hwa, Acting Provost, NTU, both medical and bioengineering representatives from industry, professional societies, academia and members of the public. A total of 120 guests turned up for the dinner lectures. The event was also honored by the invited Master of Ceremony for the occasion, Assistant Professor Louis Phee (MAE) who was also the recipient of the prestigious A\*STAR Young Scientist Award 2006.



**Figure 10:** Arrival of our GOH, BG (NS) Dr Wong Yue Sie and Prof Er Meng Hwa at the dinner lectures

The first lecture was delivered by Prof Antonios G. Mikos from Rice University (Figure 11). He is the Director of the J.W. Cox Laboratory for Biomedical Engineering and the Director of the Center for Excellence in Tissue Engineering at Rice University. His lecture was entitled, “Nanobiomaterials for Tissue Engineering”.



**Figure 11:** First dinner lecture by Prof Antonios G. Mikos (Rice University, USA)



**Figure 12:** Second dinner lecture by Prof Stephen Wong (Harvard Medical School, USA)

The second lecture was delivered by Prof Stephen Wong from Harvard University (Figure 12). He is the director of Center for Bioinformatics, Harvard Center for Neurodegeneration and Repair, Harvard Medical School as well as the Executive Director of the Functional and Molecular Imaging Center, Brigham & Women's Hospital. His presentation was entitled, “Bioinformatics of High Content Screening”.

The Dinner Lectures also witnessed the presentation of the ICBPE Young Investigator Award (YIA). The Guest-of-Honor, BG (NS) Dr Wong Yue Sie gave out the awards (Figure 13). Awardees were evaluated by a panel of judges for their originality, clarity, potential impact on practical applications or theoretical foundations as well as their oral presentations. This year, the YIA Gold Medal went to Ms Aneira M. Pariwono for her work entitled, ‘Portable Lab for Tuberculosis Screening.’ The three recipients for the Silver Medal were Mr Dae Gon Woo for his work entitled, ‘Biomechanical Tests of Osteoporotic Vertebral Trabecular Bone using Finite Element Analysis based on Micro-CT’, Ms Min Song for her work entitled ‘The Effect of UV Irradiation on the Binding of Anticancer Drug Doxorubicin to DNA in the Presence of TiO<sub>2</sub> Nanoparticles’ as well as Mr U.S. Dinish for his work entitled ‘Detection of DNA Sample Fluorescence using Frequency Domain Imaging Technique’



**Figure 13:** Awardees together with the GOH and committee members of ICBPE 2006



**Figure 14:** Distinguished guests and ICBPE delegates attending the dinner

The successful evening concluded with a toast led by A/P Lim Chu Sing Daniel, Chairman of Biomedical & Pharmaceutical Engineering Week 2006 (Figure 14). A group photograph for organizers, lecturers and distinguished guests were shown in Figure 15.



**Figure 15:** (L-R): A/P Lim Chu Sing Daniel, A/P Teo Ee Chon, Prof Er Meng Hwa, Dr Pierce Chow, A/P Laura Marcu, BG (NS) Dr Wong Yew Sie, Prof Stephen Wong, Prof Antonios Mikos, Prof David Williams, Prof Vladimir Brusic, Prof Hiroshi Maeda, Prof Teoh Swee Hin, A/P Kwoh Chee Keong and Dr Foo Jong Yong Abdiel

#### 4 Biomedical Golf Social

This was the first time a Biomedical Golf Social was organized for the BPE Week with the aim of promoting networking and social interaction in an informal setting amongst the BPE Cluster industrial partners, supporters and friends. Held on the 14 December 2006, the Golf Social venue was Jurong Country Club. The event was co-

organized by ICBPE 2006, the BPE Cluster and the IES and was sponsored by Sunkiller Suncare. The Guest-of-Honor was Prof Er Meng Hwa.



**Figure 16:** The GOH flight, (L-R) A/P Lim Chu Sing Daniel (BPE Cluster), Prof Er Meng Hwa (NTU), Ms Mah Lilian (SSC) and Prof Lee Seng Teik (SGH)

The participants consisted of academics, doctors, sporting professionals and industrial experts from NTU, Nanyang Polytechnic (NYP), Singapore Institute of Manufacturing Technology (SIMTech) and SGH to name a few.

The golfers in all the flights tee-off in style before undergoing a grueling 6 km, 18-hole walking course.



**Figure 17:** Golfers' tee-off

The Biomedical Golf Social provided a good opportunity for all to mingle and exchange great pointers both in the game as well as in their respective areas of expertise.

The challenging game finally came to an end at around noon. Despite the scorching sun and the fatigue that was building in, the participants feedback was that they thoroughly enjoyed themselves and were looking forward to the next Golf Social. On the whole, the event achieved its intention of promoting sports and building a closer rapport with fellow like-minded participants.



The event closed with the prize ceremony where our Guest-of-Honor, Professor Er Meng Hwa presented the awards to all the winners.



**Figure 18:** Prize Ceremony at the Biomedical Golf Social

## 5 Biomedical Engineering Research Centre Open house

The Biomedical Engineering Research Centre (BMERC) in NTU hosted an Open House on 14 and 15 December 2006 as an outreach to showcase some of NTU's biomedical engineering research activities, capabilities and accomplishments. Bi-hourly guided tours of the facilities and research in BMERC were conducted for special guests, members of the general public and ICBPE delegates.

Visitors included representatives from the Biomedical Sciences Group-EDB, a group of 30 medical engineering students from the University of Twente, Netherlands and many others took a keen interest in the tours.



**Figure 19:** Visitors from EDB and the public



**Figure 20:** A/P Fuss Franz Konstantin leading one of the guided tours

Research exhibits displayed throughout the facility were introduced and key breakthrough projects that found success were highlighted. The tours were planned so as to paint a clear picture of the strategic roles BMERC plays in keeping abreast with technology in the globally emerging field of biomedical engineering. This could only be made possible with partnerships of leading players in both the industries as well as medical practitioners.

In conclusion, the BPE Week 2006 met its key objectives and was found to be an important event for bringing together medical practitioners, engineering researchers, industries and members of the public. This grand coordinated event also served as an encouragement to students and researchers to be open to future technologies.

## Appendix A: Programme for NTU-SGH Graduate Student Symposium

16:30 – 17:00	<b>Registration</b>	
17:00 – 17:10	<b>Welcome Address by A/Prof Chan Yew Weng, Director, SGH-PGMI</b>	
17:10 – 18:30	<b>Session 1 (lecture room 3) Bioinformatics &amp; Computational Biology</b>	<b>Session 2 (lecture room 4) Cardiovascular &amp; Respiratory Systems/ Biomedical Signal Processing/Biooptics &amp; Biosensing</b>
	<i>Chairs: A/Prof Christopher Cheng (SGH) and A/Prof Kwoh Chee Keong (NTU)</i>	<i>Chairs: A/Prof Chan Yew Weng (SGH) and A/Prof Lim Chu Sing, Daniel (NTU)</i>
	A Prognosis Tool based on Hemostasis and Genetic Complementary Learning <i>Tuan Zea TAN, Geok See NG, Hiok Chai QUEK, S C L KOH</i>	Superoxide Detection by Chemiluminescence, Fluorescence, and Spectrophotometry Methods <i>Anindya Pradipta SUSANTO, Kyaw Thu MOE, Mohammad FIRDHAOSH, Dong-An WANG</i>
	Cross-correlation of DNA Sequences using Hypercomplex Number Encoding <i>Yajing LI, Jian-Jun SHU</i>	Speech-like Analysis of Snore Signals for the Detection of Obstructive Sleep Apnea <i>Andrew Keong NG, T S KOH, Eugene BAEY, K PUVANENDRAN</i>
	A Tale of Intronless Genes in Eukaryotic Genomes <i>Peng LI, Meena Kishore SAKHARKAR, Yu LI, Iti CHATURVEDI</i>	Rapid Palm Sized-All in one Tuberculosis Screening System <i>Aneira Marissa PARIWONO, Chu Sing LIM, Suan Theng LO, Yulmo AMRIE, A MUCHTAR</i>
	A Dynamic Systems Model of Mechanotransduction Response in an Osteoporotic Bone <i>Kalyan C MYNAMPATI, Wen Wan LING, Peter V S LEE</i>	
18:30 – 18:50	<b>Break</b>	
18:50 – 20:30	<b>Session 3 (lecture room 3) Assistive &amp; Rehabilitation Technology/Pharmacokinetics/Tissue Engineering</b>	<b>Session 4 (lecture room 4) Biomedical Imaging &amp; Visualization</b>
	<i>Chairs: Dr Denny Lie (SGH) and A/Prof Fuss Franz Konstantin (NTU)</i>	<i>Chairs: A/Prof Pierce Chow (SGH) and A/Prof Chan Kap Luk (NTU)</i>
	High Intensity Ultrasound Phased Array for Surgical Applications <i>Chang Min CHU, Meng Tong TAN, Sunita CHAUHAN</i>	Incorporation of Active Contour without Edges in the Fast Level Set Framework for Biomedical Image Segmentation <i>Annamalai LAKSHMANAN, Myo THIDA, Kap Luk CHAN, Jiayin ZHOU</i>
	Rapid On-Site Method to Screen Actinobacillus Pleuropneumoniae in Life Porcines <i>Aneira Marissa PARIWONO, A L CHAN, Pak Chiang YIP</i>	Statistical Surface Wavelets Model for Multiscale and Spatial-Localized Medical Image Analysis <i>Yang LI, Tiow Seng TAN, Ihar VOLKAU, Wieslaw L NOWINSKI</i>
	Modeling of Thermal Gelation and Degelation of MC and HPMC Hydrogels <i>Sunil Chandrakant JOSHI, Yee Cheong LAM, Bee Kim TAN, Shao Qiong LIU</i>	Retrospective Cluster Size Thresholding for MRF-based Detection of Activated Regions in fMRI <i>Suresh Anand SADANANTHAN, Vitali ZAGORODNOV</i>
	Porcine Small Intestinal Submucosa is a Suitable Small Diameter Vascular Substitute <i>TOY Wan Ching, GAN Yik-Yuen, LAW Sai Kit Alex, YEO J H, CHIU Jeng-Jiann, CHEN L J, HWANG H C</i>	Automated Endocardial Boundary Detection using Dynamic Directional Gradient Vector Flow Snakes <i>Kirthika MAHENDRAN, Say Wei FOO</i>
		FPGA Implementation of Real-time Fluorescence Endoscopy Imaging Algorithms <i>Lee Sing CHEONG, Hock Soon SEAH, Feng LIN, Chin-Wen Kenneth YU, Kemao QIAN, Khee Chee SOO, Patricia THONG, Malini OLIVO</i>
20:30 – 20:40	<b>Closing Speech by A/Prof Kwoh Chee Keong, Dy Director, BPE Cluster, NTU</b>	
	<b>End of Symposium</b>	

## Appendix B: ICBPE 2006 Programme-at-a-glance

Day 1 - Monday 11 December 2006

0830 – 0900	Registration			
0900 – 0910	Opening Speech by Conference Chair: A/P Kwoh Chee Keong, NTU, Singapore			
0910 – 0920	Opening Speech by Guest of Honour: Prof ER Meng Hwa, Acting Provost, NTU, Singapore			
0920 – 1000	<b>Plenary 1 Prof Antonios G. Mikos, Rice University, USA</b> <i>Nanobiomaterials for Tissue Engineering</i>			<u>Plenary Chair:</u> A/P Lim Chu Sing (SCBE)
1000 – 1030	Tea Break			
1030 – 1110	<b>Plenary 2 Prof David WL Hukins, University of Birmingham, UK</b> <i>Small Joint Replacement with Elastomers</i>			<u>Plenary Chair:</u> A/P Chan Yew Weng (SGH)
1110 – 1150	<b>Plenary 3 Prof D.F. Williams, University of Liverpool, UK</b> <i>Changing Concepts of Biomaterials Specification</i>			
1150 – 1230	<b>Plenary 4 Prof Tim Wess, Cardiff University, UK</b> <i>Changing order and disorder in hierarchical assemblies of fibrous macromolecule</i>			
1230 – 1330	Lunch			
1330 – 1530	<b>Session M1A</b> Biochips and Bioinstrumentation(1) (Bergomont)	<b>Session M1B</b> Biomedical Imaging and Visualization(1) (Jasmine)	<b>Session M1C</b> Biomedical Signal Processing (1) (Lavender 1)	<b>Session M1D</b> Biomechanics(1) (Lavender 2)
1530 – 1600	Tea Break			
1600 – 1800	<b>Session M2A</b> Biochips and Bioinstrumentation(2) + Bionanotechnology and BioMEMS(1) (Bergomont)	<b>Session M2B</b> Biomedical Imaging and Visualization(2) (Jasmine)	<b>Session M2C</b> Biomedical Signal Processing (2) (Lavender 1)	<b>Session M2D</b> Biomechanics(2) (Lavender 2)
1800	End of Day 1			

Day 2 - Tuesday 12 December 2006

0830 – 0900	Registration			
0900 – 0940	<b>Plenary 5 Prof Stephen Wong, Harvard Medical School, USA</b> <i>Imaging as a biomarker: a multi-scale perspective</i>			<u>Plenary Chair:</u> A/P Tjin Swee Chuan (EEE)
0940 – 1020	<b>Plenary 6 Prof Dhiraj K. Sardar, University of Texas, USA</b> <i>Highly Luminescent Rare Earth Nanoparticles for Potential Biomedical Applications</i>			
1020 – 1050	Tea Break			
1050 – 1130	<b>Plenary 7 Prof Hiroshi Maeda, Sojo University, Japan</b> <i>EPR-Effect: The Key Mechanism for Polymeric Drug Targeting to Tumor and Inflammatory Tissues</i>			<u>Plenary Chair:</u> A/P Murukeshan Vadakke Matham (MAE)
1130 – 1210	<b>Plenary 8 A/P Laura Marcu, University of California, USA</b> <i>Fluorescence lifetime spectroscopy and imaging for biomedical diagnostics</i>			
1210 – 1250	<b>Plenary 9 Dr Sally E Cliff, University of Bath, UK</b> <i>The application of finite elements to the stress analysis of articular cartilage</i>			
1250 – 1350	Lunch			
1350 – 1550	<b>Session T1A</b> Bionanotechnology and BioMEMS(2) + Tissue Engineering (Bergomont)	<b>Session T1B</b> Biomedical Imaging and Visualization(3) + Drug Discovery and Design (Jasmine)	<b>Session T1C</b> Biomedical Signal Processing(3) (Lavender 1)	<b>Session T1D</b> Biomechanics(3) + Bioinformatics and Computational Biology(1) (Lavender 2)
1550 – 1620	Tea Break			
1620 – 1800	<b>Session T2A</b> Biooptics and Biosensing (1) (Bergomont)	<b>Session T2B</b> Assistive & Rehabilitation Technology (Jasmine)	<b>Session T2C</b> Biomedical Signal Processing (4) + Cardiovascular and Respiratory Systems(1) (Lavender 1)	<b>Session T2D</b> Bioinformatics and Computational Biology(2) (Lavender 2)
1800	End of Day 2			
1815	Conference Banquet			

Day 3 - Wednesday 13 December 2006

0830 – 0900	Registration			
0900 – 0940	<b>Plenary 10 Prof Gerald H. Pollack, University of Washington, USA</b> <i>Cells, Gels and the Engines of Life: A Fresh Approach to Cell Function</i>			Plenary Chair: A/P Chou Siaw Meng (MAE)
0940 – 1020	<b>Plenary 11 A/P Pierce Chow, Singapore General Hospital, Singapore</b> <i>The Future Role of Animal Experimentation in Biomedical and Pharmaceutical Engineering</i>			
1020 – 1050	Tea Break			
1050 – 1130	<b>Plenary 12 Prof Vladimir Brusic, Harvard University, USA</b> <i>Computational Immunology: Deciphering the Immune System</i>			Plenary Chair: A/P Kwoh Chee Keong (SCE)
1130 – 1210	<b>Plenary 13 Prof Swee-Hin Teoh, National University of Singapore, Singapore</b> <i>Challenging issues in manufacturing bioresorbable scaffolds for clinical tissue engineering applications</i>			
1210 – 1250	<b>Plenary 14 Prof Michael Khor, Nanyang Technological University, Singapore</b> <i>Advanced Biomaterials Processing through Thermal Spray Technology and Spark Plasma Sintering (SPS)</i>			
1250 – 1350	Lunch			
1350 – 1430	<b>Invited Speaker 1 Rahul Thadani, AMBIS-sponsored Industry Speaker</b> <i>microRNAs: Computational Approaches and Clinical Potential</i>			
1430 – 1530	<b>Session W1A</b> Biooptics and Biosensing(2) (Bergomont)	<b>Session W1B</b> Targeted Drug & Gene Delivery (Jasmine)	<b>Session W1C</b> Cardiovascular and Respiratory Systems(2) (Lavender 1)	<b>Session W1D</b> Bioinformatics and Computational Biology(3) (Lavender 2)
1530 – 1600	Tea Break			
1600 – 1720	<b>Session W2A</b> Biomaterial and Biomolecular + Cognitive Neuroscience and Neurosystems (Bergomont)	<b>Session W2B</b> Assistive and Rehabilitation Technology(2) + Biorobotics, Surgical Robotics and Surgical Planning (Jasmine)	<b>Session W2C</b> Cardiovascular and Respiratory Systems(3) (Lavender 1)	<b>Session W2D</b> Bioinformatics and Computational Biology(4) + Distributed Diagnosis and Home Healthcare (Lavender 2)
1720 – 1800	<b>Invited Speaker 2 Joseph A. Pelletiere, U.S. Air Force</b> <i>Human Injury Prediction for US Air Force Research and Development</i>			
1800	End of Day 3			