We are looking forward to meeting you in Busan!
The 4th Congress of the
International Foot & Ankle
Biomechanics Community 2014

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i-FAB 2014 Congress Organizers

Dear Colleagues,

It is our pleasure to welcome you to i-FAB 2014, the 4th Congress of the International Foot and Ankle Biomechanics Community, in Busan, Korea from 8th (Tue) - 11th (Fri) April 2014.

The 4 key value propositions for the conference

CONNECT to provide a platform for professionals of all disciplines to interact with each other for potential collaboration both in academia and in the healthcare & footwear industry.

SHOWCASE to share the latest research and expertise developed by international researchers and clinicians to the foot and ankle biomechanics community.

PROMOTE to encourage a multi-disciplinary exchange of ideas amongst professionals internationally.

EDUCATE to enable researchers and industry players to learn from each other the process of adapting and infusing research ideas and expertise into economically viable practices for the benefit of patients and consumers.

We are looking forward to meeting you in Busan, 2014

Director, Seungbum Park
Co-Chairperson
Group of Footwear Biomechanics
Industrial Footwear Promotion Center
Busan Economic Promotion Agency(BEPA)
KOREA

Professor, Taeyong Lee
Co-Chairperson
Department of Bioengineering
College of Engineering
National University of Singapore(NUS)
SINGAPORE
COMMITTEE

Co-Chair

Director Seungbum Park, Ph.D
Busan Economic Promotion Agency (BEPA)
Korea

Professor Taeyong Lee, Ph.D
National University of Singapore (NUS)
Singapore

Local Organization Committee

Professor Ji Hye Hwang, M.D., Ph.D
Samsung Medical Center
Korea

Professor Kyung Ok Yi, Ph.D
Ehwa Womans University
Korea

Professor Joong-Sook Lee, Ph.D
Silla University
Korea

Director Se Jin Park, Ph.D
KRISS (Korea Research Institute of Standards and Science)
Korea

Professor Sai-Wei Yang, Ph.D
National Yang-Ming University
Taiwan

Director Masaaki Mochimaru, Ph.D
Digital Human Research Center, AIST
Japan

Professor Joongsuk Chun, Ph.D
Yonsei University
Korea

Professor Gwanseob Shin, Ph.D
UNIST (Ulsan National Institute of Science and Technology)
KOREA

Professor Dong-wook Han, Ph.D., PT
Silla University
Korea

Professor Hur Jihee, Ph.D
Donga University
Korea

Professor Byung-hwan Jeon, Ph.D
Kyungsung University
Korea

Professor Jung-hwan Oh, Ph.D
Chungnam National University
Korea

Professor Han-sook Lee, Ph.D., PT
Eulji University
Korea

Professor Hwan-gbo Kak, Ph.D., PT
Daegu University
Korea

Professor Jungja Kim, Ph.D
Chonbuk National University
Korea

Professor Sewon Yoon, Ph.D
Kwangju Women’s University
Korea
The International Foot and Ankle Biomechanics Community (i-FAB) is an international collaborative activity which will have an important impact on the foot and ankle biomechanics community. It was launched on July 2nd in 2007 at the foot and ankle session of the International Society of Biomechanics (ISB) meeting in Taipei, Taiwan. i-FAB is driven by the desire to improve our understanding of foot and ankle biomechanics as it applies to health, disease, and the design, development and evaluation of foot and ankle surgery, and interventions such as footwear, insoles and surfaces.

A Steering Group has been formed to guide the initial development of the i-FAB community and activities. The Steering Group seeks to construct a framework for developing i-FAB to meet the needs of the foot and ankle biomechanics community and welcomes input and direction from members.
# 2014 i-FAB Schedule

<table>
<thead>
<tr>
<th>Time</th>
<th>4/8(Tuesday)</th>
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<td>12:30</td>
<td>Registration Start</td>
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<td>4 Workshop in BEXCO convention Hall (workshops will be available free-of-charge)</td>
<td>Plenary Talk 2 Dr Wolfgang Potthast</td>
<td>Plenary Talk 4 Dr Hong-Geun Jung</td>
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<td>Afternoon Tea &amp; Poster Presentation</td>
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<td>18:00</td>
<td>Welcome Reception in Nurimaru APEC House</td>
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<td>2014 i-FAB Award &amp; Banquet in Gyeongju City</td>
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Welcome to i-FAB

i-FAB is an international collaborative activity which will have an important impact on the foot and ankle biomechanics community. It was launched on July and 2007 at the foot and ankle session of the International Society of Biomechanics meeting in Taipei, Taiwan. We now have over 500 members.

i-FAB welcomes members from every community related to foot and ankle biomechanics, from academics, physicians, podiatrists, surgeons, and health professionals, to members of the footwear, insole, surgery and related industries. i-FAB has an open philosophy and connecting people across traditional disciplinary boundaries is one of its key objectives. Membership is presently FREE.

A Steering Group has been formed to guide the initial development of the i-FAB community and its activities. The Steering Group seeks to construct a framework for developing i-FAB to meet the needs of the foot and ankle biomechanics community and welcomes input and direction from members.

Three i-FAB activities are presently underway: web site, conference, and e-communications. The web site and e-communications are the start of a global “collaborative workspace” in which all members of the foot and ankle biomechanics community can engage.

Collectively, these activities have the following objectives:

- Providing information on the global activities related to foot and ankle biomechanics
- Connecting people working in the foot and ankle biomechanics domain regardless of location and discipline
- Facilitating debate on key issues for the community
- Creating coordinated community wide activities
- Developing a profile for an international critical mass of research activity related to foot and ankle biomechanics
- We hope you will join i-FAB and contribute to the development of this exciting opportunity for your community.

Welcome to i-FAB
**Program Topics**

One exciting goal of i-FAB is to promote and advance research in the field of foot and ankle biomechanics by providing up-to-date consensus based standards for the study and description of foot and ankle kinematics. We have assembled a committee to provide standardized quantitative morphological databases and periodic reviews of the state-of-the-art in foot and ankle kinematic research. i-FAB welcomes members from every community related to foot and ankle biomechanics, from academics, physicians, podiatrists, surgeons, and health professionals, to members of the footwear, orthosis, surgery and related industries. i-FAB has an open philosophy and connecting people across traditional disciplinary boundaries is one of its key objectives.

| • Ankle Instability               | • Motor Control                |
| • Anthropometry                  | • Neuromuscular Biomechanics   |
| • EMG                           | • Orthopaedics                 |
| • Falls                         | • Podiatry                     |
| • Footwear                      | • Paediatrics                  |
| • Forensic Biomechanics         | • Plantar Pressure             |
| • Imaging                       | • Posture and Balance          |
| • Impact Biomechanics           | • Prosthetics and Orthotics    |
| • Injury Biomechanics           | • Sport Biomechanics           |
| • Lower Extremity Injuries      | • Rehabilitation               |
| • Musculoskeletal Modeling      | • 3D Motion Analysis           |
Technical and practical aspects in the clinical application of dynamic pressure measurements

Professor, Dr. Dieter Rosenbaum
University of Münster, GERMANY

Director, Gait Lab Director - University of Muenster Wiss. Mitarbeiter - UKM Uniklinikum Muenster Resench Associate, Foot & Ankle Biomechanics - Ulm University, Doctoral Student, Research Assistant - University Essen / Duisburg Research & Teaching Assistant - University of Iowa

Electromyography in the Study of Human Movement

Professor, Dr. Jim Richards
University of Central Lancashire, UK

Jim Richards was appointed Professor in Biomechanics and research lead for Allied Health Professions at University of Central Lancashire in 2004. Professor Richards work includes the clinical application of biomechanics, the development of new assessment tools for chronic disease, conservative and surgical management of orthopaedic and neurological conditions, and development of evidence based approaches for improving clinical management and rehabilitation. Professor Richards has authored over 200 papers and written and edited a number of textbooks including Biomechanics in Clinic and Research (2008) and the 5th edition of Whittle’s Gait Analysis (2012). He has also contributed to Tidy’s Physiotherapy (2003, 2008, 2012), the 10th edition of Mercer’s Textbook of Orthopaedics and Trauma (2012) and Experimental Research Methods: A Guidebook for Studies in Trauma Care (in preparation).
Clinical application of 3D multi-segment foot model: What we are looking for?

Professor, M.D., Dr. Dong Yeon Lee
Seoul National University Hospital, KOREA

Dr Dong Yeon Lee, is the clinical associate professor and the Chief of the Foot and Ankle Division at the department of Orthopedic Surgery, Seoul National University Hospital (SNUH), Seoul, Korea. He graduated College of Medicine and also achieved PhD at Seoul National University, Seoul, Korea. He is now working with Dr. Keith Wapner as a visiting researcher in University of Pennsylvania, Philadelphia, PA, USA in 2013-2014. He has been a member of editorial board for the journals of Korean orthopedic Association and Korean Foot and Ankle Society. He is specialized in foot and ankle, and his clinical practices include a diabetic foot clinic and a sports injury clinic. He is a main researching staff in Human Movement Analysis Laboratory in SUNH. He has been performing numerous Korean governmental research projects (2010-2014) using multi-segmented foot models and international co-research project.

The IOR foot model and the Oxford foot model

Director, Dr. Scott Selbie
C-Motion Inc., USA

Scott Selbie is the Director of Research at C-Motion (USA) and President of HAS-Motion (Canada). Scott is currently an adjunct Professor at Queen’s University (Canada), and the University of Massachusetts (USA). He got his PhD in Biomechanics from Simon Fraser University (1990), he received post doctoral training at the University of Geneva, the University of Leuven, and Queen’s University. He was a staff scientist at the U.S. National Institutes of Health where he focused on biomechanical modeling of the human larynx, and three dimensional reconstructions of biological structures from various medical imaging modalities, and was an inventor on 3 US Patents. He is the former Director of Biomedical Visualization for Medical Consumer Media (MCM) where he developed an immersive virtual environment for Oncologists. Scott has been involved in the development of analytical tools for biomechanical models based on motion capture data for most of his career, and he has been the Principal Investigator on all but two of C-Motion’s NIH grants and contracts. As director of research at C-Motion he has been intimately involved with the evolution of C-Motion’s Visual3D software since the original technology transfer from the National Institutes of Health.
Plenary Speakers

Foot(Wear) biomechanics in diabetes : pressure on pressure off

Professor, Dr. Sicco A. Bus (Ph.D)
University of Amsterdam, The NETHERLANDS

Human Performance Laboratory Department of Rehabilitation Academic Medical Centre University of Amsterdam . Human Performance Laboratory, Department of Rehabilitation, Academic Medical Centre, University of Amsterdam, The Netherlands. Diabetic Foot Unit, Department of Surgery, Twenteborg Hospital, Almelo, Netherlands. 2009 - 2010 - Department of Internal Medicine, Academic Medical Center, University of Amsterdam, Amsterdam, Netherlands. 2004 - 2009 - Institute for Fundamental and Clinical Human Movement Sciences, Faculty of Human Movement Sciences, Vrije University, Amsterdam, Netherlands. 2003

Biological and technological regulators for the load management of foot and ankle structures

Professor, Dr. Wolfgang Potthast (Ph.D)
German Sport University Cologne, GERMANY

Wolfgang Potthast has undergraduate degrees in Physics from the University of Cologne and Sport Sciences from the German Sport University Cologne. He received his PhD in Sport Sciences from the German Sport University in 2005. After working as a senior researcher in the Institute of Biomechanics and Orthopaedics at the German Sport University, Wolfgang moved to the Department of Sport and Sport Sciences at the Karlsruhe Institute of Technology (KIT) in 2010, where he held a professorship for Movement Science and Biomechanics. In August 2012 Wolfgang accepted the position of professor in Clinical Biomechanics at the German Sport University Cologne. His research focuses mainly on loading and loading response of the human musculo-skeletal system. His major research focus is the interaction between the musculo-skeletal system and technology in sports and clinically relevant research questions. Consequently Wolfgang worked, works and will work in a lot of research topics related to functional footwear. At present he is becoming increasingly involved in large interdisciplinary research projects. Wolfgang has more than 100 publications and papers in scientific congresses. He served from 2008 to 2010 as a member of the Executive Board of the Footwear Biomechanics Group (FBG), is a director of the International Society of Biomechanics in Sports (ISBG) since 2008 and works as Vice President for Public Relations since 2010 for that society. He earned the Nike basic research award of the FEG in 2005, the New Investigator Award of the ISBS in 2005 and the novel award in 2006.

Understanding the biomechanical effect of foot orthoses

Professor, Dr. Chris Nester (Ph.D)
University of Salford, U.K.

Professor Chris Nester is a Podiatrist by first degree and now leads the Foot and Ankle Research Programme in the School of Health Sciences at the University of Salford. Chris has led many international foot and ankle
Common foot and ankle disorders: clinical perspectives

Professor, Dr. Hong-Geun Jung (M.D., Ph.D)
Konkuk University Medical Center, KOREA

Dr Hong-Geun Jung, is the professor and the attending staff surgeon at the department of Orthopedic Surgery, Konkuk University Medical Center, Seoul, Korea and the Chief of the Foot and Ankle Division. He is specialized in foot and ankle, and his main practices are reconstruction of the foot and ankle deformities and arthritis, ankle/subtalar ligament instabilities and hallux valgus surgeries. He graduated College of Medicine, Seoul National University in Seoul 1988 and also achieved master degree and PhD in the same school. He finished orthopaedic residency in Seoul National University Hospital and has been practicing foot and ankle as the university faculty thereafter. He had undergone clinical fellowship with Dr Mark Myerson and Dr Lew Schon in Union Memorial Hospital, Baltimore, Maryland, USA in 2002-2003. He is at present the Secretary General and member of trustee of Korean Foot and Ankle Society (KFAS) and was also the past-Secretary General of the Korean Society of Sports Medicine (KSSM). He has been member of editorial board for the journals of Korean orthopedic Association (KOA) and KFAS. He received a number of academic awards from KOA, KFAS and KSSM and etc. He has been enlisted in “Marcus Who is Who in the World” since 2006, and is the faculty for AOTrauma. He has published more than 80 foot and ankle journals and written several book chapters so far in foot and ankle fields.

Biomechanical analysis of running-specific prostheses

Dr. Hiroaki Hobara (Ph.D)
National Institute of Advanced Industrial Science and Technology(AIST), JAPAN

Dr. Hobara has a tenure-track position at National Institute of Advanced Industrial Science and Technology(AIST) of Japan, and he is working as Research Scientist in Digital Human Research Center. Dr. Hiroaki Hobara, a recent postdoc with Dr. Jae Kun Shim of Neuromechanics Laboratory, received Promising Young Scientist Award from International Society of Biomechanics (ISB). This honorary award is desiged to acknowledge people who have performed superior biomechanics research early in their career. It entails a certificate and a monetary award of US $5000 for scientific purposes, such as visiting another research group to collaborate on a project. The competition is held bi-annually in which there is an ISB-conference, and the Award Committee of ISB thoroughly evaluates candidates CV’s, publications, and research summaries to select an winner. Research Scientist, Digital Human Research Center, AIST[National Institute of Advanced Industrial Science and Technology], JAPAN. Research Associate, University of Maryland, U.S.A. Research Fellow JSPS . Waseda University Ph.D., Sports Sciences 2003 - 2008. Juntendo University Bachelor of Science (B.Sc.), Sports and Health Sciences 1999 - 2003.
Oral Presentation Schedule

WEDNESDAY 9 April 2014 - MORNING

8:30 - 9 am  Opening Ceremony

9 - 9:45 am  Plenary 1:
Foot(Wear) biomechanics in diabetes: pressure on pressure off
Professor, Dr. Sicco A. Bus (Ph.D)
University of Amsterdam, the Netherlands

9:45 - 10:30 am  Session 1: Clinical Biomechanics I

(O01) Temporal Pattern in Segmental Motions of the Foot in Healthy Senile Adults: Comparison between Young and Senile Healthy Adults
Sang Gyo Seo*, Dong Yeon Lee1, Ji-Beom Kim1, Seong Hyun Kim1, Hye Sun Park1, Hyo Jeong Yoo1, Sung Ju Kim1, Ji-Heung Kim1, Kyung Min Lee1, Chin Youb Chung1, In Ho Choi1
1Department of Orthopedic Surgery, Seoul National University Hospital, Seoul, Korea
2Department of Orthopaedic Surgery, Seoul National University Boramae Medical Center, Seoul, Korea
3Department of Orthopedic Surgery, Seoul National University Bundang Hospital, Seongnam, Korea

(O02) Full-length carbon fiber insole alters lower leg muscle activity in patients with midfoot arthritis
Tae Im Yi, MD*, Ji Hye Hwang, MD, PhD1, Tae Hee Yoon, MD2, Ji Yang, PT3, Jung Hyun Kim, PT1
1Department of Physical and Rehabilitation Medicine, Bundang Jesaeng General Hospital, Seohyeon-dong, Bundang-gu, Seongnam, Korea
2Department of Physical and Rehabilitation Medicine, Sungkyunkwan University School of Medicine, Samsung Medical Center, 50 Irwon-dong, Gangnam-gu, Seoul 135-710, Korea
3Center for Clinical Medicine, Samsung Medical Center, 50 Irwon-dong, Gangnam-gu, Seoul 135-710, Korea

(O03) The effect of gender, age, bodyweight, height and body mass index on plantar soft tissue stiffness
Jee Chin Teoh1, Taeyong Lee1*
1Department of Biomedical Engineering, National University of Singapore, Singapore

10:30 - 11 am  Coffee Break

11 - 12:45 pm  Session 2: Plantar Pressure

(O04) Foot segments mobility and plantar pressure in the normal foot
Paolo Caravaggi1, Claudia Giacomozzi2, Alberto Leardini1
1Movement Analysis Laboratory, Istituto Ortopedico Rizzoli, Bologna, 40136, Italy
2Department of Technology and Health, Istituto Superiore di Sanità, Roma, 00161, Italy

(O05) Measurement of plantar pressure data in children with clubfoot
Julie Stebbins1, Louise Way1, Claudia Giacomozzi2
1Oxford Gait Laboratory, Oxford University Hospitals NHS Trust, Oxford, Oxon, OX3 7HE, UK
2Department of Technology and Health, Istituto Superiore di Sanità, Roma, Italy

(O06) Quantifying degree of foot use impairment in hemiplegic gait using center-of-pressure trajectory vector difference integrals
T. C. Pataky, H. Tanaka, M. Hashimoto
1Department of Bioengineering, Shinshu University, Ueda, Nagano, Japan
11:15-12:45 pm

(O07) The effect of various subject characteristics on plantar pressure pattern
Noël LW Keijsers1*, Niki M Stolwijk1, Jan-Willem K Louwerens2
1Department of Research and Orthopaedics, Sint Maartenskliniek, Nijmegen, the Netherlands

(O08) Preservation of gait biomechanics during offloading treatment of diabetic foot ulcers
Claudia Giacomozzi1
1Department of Technology and Health, IstitutoSuperiore di Sanità, Rome, Italy

(O09) Effects of plantar fascia on first metatarsophalangeal joint stress in different foot types
Rajshree Mootanah1, Khadija Saoudi1, Joel Mazella1, Antoine Truchetet1, Jonathan Deland1, Scott Ellis1, Josh Baxter1, Howard J Hillstrom1
1Anglia Ruskin University, Chelmsford, Essex, UK
2Universite de Lorraine, Nancy, France
3Ecole des mines d’Albi-Carmaux, Albi, France
4Hospital for Special Surgery, NY, USA

(O10) Walking on an unpredictableirregularsurfacechanges lower limb biomechanics and subjective perception compared to walking on a regular surface
Thorsten Sterzing1*, Charlotte Apps1, Rui Ding1, Jason Tak-Man Cheung1
1Sports Science Research Center, Li Ning (China) Sports Goods Co Ltd, Beijing, 101111, China
2School of Sport and Exercise Sciences, Liverpool John Moores University, Liverpool, L3 3AF, UK

12:45-1:45 pm

Lunch

1:45-2:30 pm

Plenary 2:
Biological and technological regulators for the load management of footand ankle structures
Professor, Dr. Wolfgang Potthast (Ph.D)
German Sport University Cologne, Germany

2:30-3:15 pm

Session 3: Ankle and Instability

(O11) The effect of balance training on ankle proprioception in patients with functional ankle instability
Tarang K. Jain1*, Clayton N. Wauneka2, Wen Liu1
1Physical Therapy and Rehabilitation Science, University of Kansas Medical Center, Kansas City, KS, 66160, USA
2Bioengineering Graduate Program, University of Kansas, Lawrence, KS, 66405, USA

(O12) The effect of exercise on ligament laxity during inversion/eversion rotations at the ankle joint
Alison S Attenborough1*, Peter J Sinclair1, Richard M Smith1, Claire E Hiller2
1Discipline of Exercise and Sport Science and 2Discipline of Physiotherapy, The University of Sydney, Lidcombe, NSW, 2141, Australia
WEDNESDAY 9 April 2014 - AFTERNOON

2:30-3:15 pm  
(O13) People with recurrent ankle sprains do not change their ankle strategy in anticipation of a perturbation event.
Claire E Hiller1*, Stuart Blair1, Elizabeth J Nightingale1, Milena Simic1, Joshua Burns1,2
1Arthritis & Musculoskeletal Research Group, Faculty of Health Sciences, University of Sydney, NSW, Australia
2Institute for Neuroscience and Muscular Research, The Children’s Hospital at Westmead, Sydney, NSW, Australia

(O14) Limb dominance for fifth metatarsal fracture in football players is position-specific.
Tomoya Ueda1,2, Hiroaki Hobara1*, Yoshiyuki Kobayashi1, Masaaki Mochimaru1, Hiroshi Mizoguchi2
1National Institute of Advanced Industrial Science and Technology, Tokyo, Japan
2Tokyo University of Science, Chiba, Japan

(O15) Effects of the Thai massage program on range of motion of lower extremities and vertical jump performance in collegiate volleyball players, Burapha University, Thailand
Sirikool Klumkool1, Kawiya Sintara1, Sakesan Tongkhambancsong2
1Faculty of Sport Science, Burapha University, Thailand
2Faculty of Education, Burapha University, Thailand

(O16) Effects of ankle and knee braces on leg stiffness during hopping
Hiroaki Hobara1*, Yoshiyuki Kobayashi1, Tomoya Ueda1,2, Masaaki Mochimaru1
1National Institute of Advanced Industrial Science and Technology, Tokyo, Japan
2Tokyo University of Science, Chiba, Japan

(O17) Cycling Performance Enhancement and Injury Prevention use an Arch Support insole with Forefoot Wedge
Sai-Wei Yang1*, Po-Hsun Lia1, and Keh-Tao Liub1
1Department of Biomedical Engineering, National Yang-Ming University, Taipei, Taiwan
2Global Action Inc- Footdisc®, Taiwan

(O18) Rearfoot strikers have smaller resultant tibial accelerations at foot contact than non-rearfoot strikers
Molly D Glauberman1 and Peter R Cavanagh1*
1Department of Orthopaedics and Sports Medicine, University of Washington, Seattle, WA, USA

3:15-4:15 pm  
Afternoon Tea + Poster

4:15-5:30 pm  
Session 4: Sports Biomechanics + injury biomechanics

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Tomoya Ueda1,2, Hiroaki Hobara1*, Yoshiyuki Kobayashi1, Masaaki Mochimaru1, Hiroshi Mizoguchi2
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1Department of Biomedical Engineering, National Yang-Ming University, Taipei, Taiwan
2Global Action Inc- Footdisc®, Taiwan

(O18) Rearfoot strikers have smaller resultant tibial accelerations at foot contact than non-rearfoot strikers
Molly D Glauberman1 and Peter R Cavanagh1*
1Department of Orthopaedics and Sports Medicine, University of Washington, Seattle, WA, USA
**THURSDAY 10 April 2014 - MORNING**

**Plenary 3:**

**Understanding the biomechanical effect of foot orthoses**

**Professor, Dr. Chris Nester (Ph.D)**

University of Salford, U.K.

**9:45-10:30 am**

**Session 5 : Footwear and Insole**

(O19) **Development and Performance Evaluation of Slip-resistant Agricultural Work Shoes**

Lee Kyung-suk, Oh Young-soon, Kim Do-hee, Chae Hye-seon, Kim Kyung-ran

National Academy of Agricultural Science, Rural Development Administration, Suwon, Korea

(O20) **Foot and ankle biomechanics play a role in biomechanical response to lateralwedge insoles**

Richard K Jones1, Graham J Chapman1, Matthew J Parkes2, Laura Forsythe2, David T Felson3

1Centre for Health Science Research, University of Salford, Greater Manchester, M6 6PU, UK
2Institute of Rheumatic and Musculoskeletal Disease, University of Leeds, Leeds, UK
3Arthritis Research UK Epidemiology Unit, University of Manchester, Manchester, UK

(O21) **Testing a mechanical protocol to replicate impact in walking footwear**

Carina Price1, Glen Cooper2, Philip Graham-Smith1 and Richard Jones1

1Centre for Health Science Research, University of Salford, Greater Manchester, M6 6PU, UK
2School of Engineering, Manchester Metropolitan University, Manchester, UK

**10:30-11am**

**Coffee Break**

**11-12:45 pm**

**Session 6 : 3D Motion Analysis + FBG special talk**

(O22) **Direct assessment of foot kinematics during human gait using a dynamic cadaver simulator and a biplane X-ray fluoroscopy**

Kohta Ito1, Naomichi Oshihara1*, Koh Hosoda1*, Masahiro Shimizu2, Shinnosuke Kume2, Takeo Nagura2, Toshiyasu Nakamura3, Nobuki Imanishi4, Sadakazu Aiso4, Masahiro Jinzaki4

1Department of Mechanical Engineering, Keio University, Yokohama, Japan
2Department of Multimedia Engineering, Osaka University, Suita, Japan
3School of Medicine, Keio University, Tokyo, Japan

(O23) **Preliminary model-based validation of a biplane fluoroscopy system**

Joseph Mlaquinto1,2, Richard Tsai1, Quoc-Bao Vu1, David R Haynor1, Bruce J Sangeorzan1,2, William R Ledoux1,2,4,*

1RR&D Center of Excellence, VA Puget Sound Healthcare System, Seattle, WA, USA
2Depts. of *Mechanical Eng.
3Radiology, and *Orthopaedics, University of Washington, Seattle, WA, USA

(O24) **Kinetic analysis of the metatarsophalangeal joint in normal subjects and hallux valgus patients during walking using a four-segment foot model**

Bora Jeong, Seung hyeon Kim, Jong sang Son, Young ho Kim*

Yonsei University, Wonju, Gangwon, 220-710, Korea

(O25) **The effects of three quarter and full length foot orthoses on patellofemoral pain sufferers when walking and descending stairs**

Jim Richards1*, John Burston1, James Selfe1

1Allied Health Professions Research Unit, University of Central Lancashire, Preston, PR1 2HE, UK
THURSDAY 10 April 2014 - MORNING

11-12:45 pm

(O26) Effect of marker placement on Oxford Foot Model hindfoot segment axes
Adward M H Paik1,*, Julie Stebbins2, Alpesh Kothari1, Amy B Zavatsky1
1Department of Engineering Science, University of Oxford, Oxford, OX1 3PJ, UK
2Oxford Gait Laboratory, Nuffield Orthopaedic Centre, Oxford, OX3 7LD, UK
1Nuffield Department of Orthopaedics Rheumatology and Musculoskeletal Sciences, Nuffield Orthopaedic Centre, Windmill Road, Oxford, OX3 7LD, UK

(O27) The effect of foot structure and functional foot stability on the gait patterns of the foot
Malia T Ho, John Tan
Physical Education and Sports Science, Nanyang Technological University, Singapore, Singapore

THURSDAY 10 April 2014 -AFTERNOON

12:45-1:45 pm

Lunch

1:45-2:30 pm

Plenary 4 :
Common foot and ankle disorders: clinical perspectives
Professor, Dr. Hong-Geun Jung (M.D., Ph.D)
Konkuk University Medical Center, Korea

2:30-3:15 pm

Session 7 : Clinical Biomechanics II

(O28) Correlation between radiography and motions of foot and ankle during gait using 3D multi-segment foot model.
Dong Yeon Lee, Sang Gyo Seo, Ji-Beom Kim, Sung Ju Kim, In Ho Choi
Orthopedic Surgery, Seoul National University Hospital, Seoul, Korea

(O29) Sagittal and axial mobility of 1st ray in hallux valgus
Kiwon Young MD1, Jinsu KIM , MD1, Ph.D. Hunki Cho, MD1, Hyoungsuk Kim1, MD1
1Dept. of Orthopaedic Foot & Ankle Eulji Medical College Hospital Nowon Seoul, Korea

(O30) Change of ankle pain after Total Knee Replacement Arthroplasty
Heui-Chul Gwak, M.D., Ph.D.*
Department of Orthopedic Surgery, Busan Paik Hospital, College of Medicine, Inje University, 633-165 Gaeguem-dong, Busan Jin-gu, Busan, Korea

3:15-4:15 pm

Afternoon Tea + Poster

4:15-5:30 pm

Session 8 : Rehabilitation + musculoskeletal modeling

(O31) Age-related changes in foot kinematics during walking
John Arnold1,*, Shylie Mackintosh2,3, Sara Jones1, Dominic Thewlis1,2
1Biomechanics and Neuromotor Laboratory, School of Health Sciences, University of South Australia, Adelaide, Australia
2Sansom Institute for Health Research, University of South Australia, Adelaide, Australia
3International Centre for Allied Health Evidence (ICAHE), University of South Australia, Adelaide, Australia
A computational biomechanics study to investigate the effect of myoelectric stimulation on peroneal muscles in preventing inversion-type ankle ligamentous sprain injury
Sophia C.W. HÁ*, Jianxin CHEN, Daniel T.P. FONG, K.M. CHAN
Department of Orthopaedics and Traumatology, Prince of Wales Hospital, Faculty of Medicine, The Chinese University of Hong Kong, Hong Kong

What have studies using finite element analysis taught us about the diabetic foot? A systematic review
Scott Telfer1,2, Ahmet Erdemir1, James Woodburn1, Peter R Cavanagh1
1Institute for Applied Health Research, Glasgow Caledonian University, Glasgow, UK
2Department of Orthopaedics and Sports Medicine, University of Washington, Seattle, WA, USA

A neuromusculoskeletal model to simulate the isokinetic ankle dorsiflexion test of spasticity
Ruoli Wang1,2, Örjan Ekeberg1, Anders Fagergren1, Johan Gäverth1, Hans Forsberg1
1Department of Computational Biology, KTH Royal Institute of Technology, Stockholm, Sweden
2AggeroMedtech AB, Stockholm, Sweden

The effect of various heights of high-heeled shoes on foot arch deformation: Finite element analysis
Amir Ahmady1, Ehsan Soodmand2,3, Iman Soodmand1, Thomas L. Milani2
1Department of Biomedical Engineering, University of Malaya, Kuala Lumpur, Malaysia
2Technische Universität Chemnitz, Chemnitz, Germany
3Department of Mechanical Engineering, Jondishapour University of Technology, Dezful, Iran

FRIDAY 11 April 2014 - MORNING

9:45-10:45 am
Session 9 : Prosthetics + Posture and balance

The use of a robotics gait simulator for the development of an alignment tool for lower limb prostheses
Eveline De Raeve1, Tom Saey1, Luiza Muraru1, Louis Peeraer1
1MOBILAB, University College Thomas More, Geel, Belgium

Active control of a powered ankle-foot prosthesis
Ashwin Needham1, Andrzej Ordys1
1School of Mechanical and Automotive Engineering, Kingston University, London, UK

Correlation between Foot Type and Posture for the Elderly
Kyung-ock Yi1, Nam hee Kim1
1Human Movement Study, Ewha Womans University, Seoul, Korea
2Hanbuk University, Donduchun, Kyuggido, Korea
Ankle proprioception correlates with functional mobility in people with Peripheral Neuropathy

Shuqi Zhang1,2, Li Li1*
1Department of Health and Kinesiology, Georgia Southern University, Statesboro, GA, USA
2School of Kinesiology, Louisiana State University, Baton Rouge, LA, USA

Comparison of postural control with different customized foot orthoses on isolated subtalar arthrodesis

Ceccaldi Edouard1,2*
1Applied Podiatry College, 7 Treguel, 86000 Poitiers, France.
2Podiatrist, Office, 35 rue Sermonoise, 77380 Combs la Ville, France

Foot type symmetry and change of foot structures from sitting to standing conditions

Howard Hillstrom1, Jin sup Song1, Michael Neary1, William Brechue1, Rebecca A. Zifchock1, Steven Svoboda1, Marian T Hannan4
1Hospital for Special Surgery, New York, New York, USA
2Temple University School of Podiatric Medicine, Philadelphia, Pennsylvania, USA
3United States Military Academy, West Point, New York, USA
4Hebrew Senior Life, Harvard Medical School, Boston, USA

Size of the abductor hallucis muscle in older women with hallux valgus

Karen J Mickle1*, Christopher J Nester2
1Biomechanics Research Laboratory, University of Wollongong, NSW, 2522, Australia
2Centre for Health Sciences Research, University of Salford, Salford, M6 6PU, UK

Are lower limb biomechanical factors associated with night-time calf cramps in adults? A Case-control study

Fiona Hawke1,2*, Vivienne Chuter1, Joshua Burns1,2
1Podiatry Program, The University of Newcastle, Ourimbah, NSW, 2258, Australia
2Sydney Medical School, The University of Sydney, Westmead, NSW, 2145, Australia
3Arthritis and Musculoskeletal Research Group, Faculty of Health Sciences, The University of Sydney / Institute for Neuroscience and Muscle Research / Paediatric Gait Analysis Service of NSW, Sydney Children’s Hospitals Network (Randwick and Westmead), Australia

Lunch & Gyeongju City Tour Program
(12.00-5.30pm)
## Poster Presentation Schedule

The poster session will take place on 9(Wed) 10(Thu) April, 3:15 - 4:15pm.

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<thead>
<tr>
<th>Poster Number</th>
<th>Title</th>
<th>Authors</th>
<th>Affiliations</th>
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<tr>
<td>(P01)</td>
<td><strong>Foot Biomechanics- Emerging Paradigms</strong></td>
<td>Stephen F. Albert</td>
<td>Chief Podiatric Section, Surgical Service. Dept. of Veterans Affairs Medical Center, Denver, Colorado 80220, USA</td>
</tr>
</tbody>
</table>
| (P02)         | **Individual and generalized lower limb muscle activity and kinematic adaptations during running on an unpredictable irregular surface** | Charlotte Apps1,2*, Rui Ding1, Jason-Tak-Man Cheung1, Thorsten Sterzing1 | 1Sports Science Research Center, Li Ning (China) Sports Goods Co Ltd, Beijing, China  
2School of Sport and Exercise Sciences, Liverpool John Moores University, Liverpool, L3 3AF, UK |
| (P03)         | **Individual and generalized lower limb muscle activity and kinematic adaptations during walking on an unpredictable irregular surface** | Charlotte Apps1,2*, Rui Ding1, Jason Tak-Man Cheung1, Thorsten Sterzing1 | 1Sports Science Research Center, Li Ning (China) Sports Goods Co Ltd, Beijing, China  
2School of Sport and Exercise Sciences, Liverpool John Moores University, Liverpool, L3 3AF, UK |
| (P04)         | **1000 Norms Project: Understanding foot and ankle health, disease and normality** | Jennifer N Baldwin1*, Marnee M McKay1, Claire E Hiller1, Jean E Nightingale1, Niamh Moloney1, Natalie Vanicek1, Paulo Ferreira1, Milena Simic1, Kathryn Refshauge1 and Joshua Burns1-5 on behalf of the 1000 Norms Project Consortium | 1Arthritis and Musculoskeletal Research Group, Faculty of Health Sciences, The University of Sydney, Australia  
2Institute for Neurosciences and Muscle Research, The Children’s Hospital at Westmead, Australia |
| (P05)         | **Does size matter? The influence of shoe-hole sizes on foot-mounted marker motion during walking gait** | Chris Bishop1, John B Arnold1, Francois Fraysse1 and Dominic Thewlis1-3 | 1Biomechanics and Neuromotor Laboratory, School of Health Sciences, University of South Australia, Australia  
2Sansom Institute for Health Research, University of South Australia, Australia  
3Centre for Orthopaedic and Trauma Research, University of Adelaide, Australia |
| (P06)         | **Effects of differently cushioned running shoes at left and right foot on running symmetry** | Torsten Brauner1, Thorsten Sterzing1, Mathias Wulf1, Thomas Horstmann1-2 | 1Technische Universität München, Munich, Germany  
2Sports Science Research Center, Li Ning (China) Sports Goods Co Ltd, Beijing, China  
3Medicalpark St. Hubertus, Bad Wiessee, Germany |
| (P07)         | **Insole-pressure distribution in three pressure-relief postoperative shoes** | Paolo Caravaggi1, Alessia Giangrande, Lisa Bert1, Sandro Giannini1-2, Carlo Ferraresi1, Alberto Leardini1 | 1Movement Analysis Laboratory, Istituto Ortopedico Rizzoli, Bologna, 40136, Italy  
2Division of orthopedic surgery, Istituto Ortopedico Rizzoli, Bologna, 40136, Italy  
3DIMEAS, Politecnico di Torino, Torino, 10129, Italy |
| (P08)         | **Validation and clinical relevance of footprint anatomical masking in clubfoot** | Claudia Giacomozzi1, Julie Stebbins1, Louise Way1 | 1Department of Technology and Health, Istituto Superiore di Sanità, Rome, Italy  
2Nuffield Oxford Orthopaedic Centre, Oxford, UK |
| (P09)         | **Baropodometry and stereophotogrammetry for classifying flatfoot severity: dynamic angles and footprint indexes** | Claudia Giacomozzi1, Paolo Caravaggi1, Lisa Bert1, Alberto Leardini1, Sandro Giannini1-2 | 1Department of Technology and Health, Istituto Superiore di Sanità, Rome, Italy  
2Movement Analysis Laboratory, Istituto Ortopedico Rizzoli, Bologna, Italy  
3Orthopaedic Clinic, Istituto Ortopedico Rizzoli, Bologna, Italy |
P10. Fourier analysis of vertical forces to integrate balance measurements
Claudia Giacomozzi¹, Francesco Martelli¹, Massimo Lillia¹, Antonello Fadda¹
¹Department of Technology and Health, Istituto Superiore di Sanità, Rome, Italy
²Electronic High School ISIS Arturo Malignani, Udine, Italy

P11. Comparison of ankle joint kinematics of a single athlete during an ankle inversion sprain incident and normal non-injury motions
Zoe Y.S. CHAN¹, Sophia C.W. HA²*, Daniel T. P. FONG², K. M. CHAN²
¹Division of Biomedical Engineering, Department of Electronic Engineering, The Chinese University of HongKong, HongKong
²Department of Orthopaedics and Traumatology, Prince of Wales Hospital, Faculty of Medicine, The Chinese University of HongKong, HongKong

P12. Analysis of ankle inversion sprain injury mechanism from accidental injury cases captured in televised basketball matche
K.M. CHAN¹, Sophia C.W. HA²*, Daniel T. P. FONG², K. M. CHAN²
¹Division of Biomedical Engineering, Department of Electronic Engineering, The Chinese University of HongKong, HongKong
²Department of Orthopaedics and Traumatology, Prince of Wales Hospital, Faculty of Medicine, The Chinese University of HongKong, HongKong

P13. A novel technique of quantifying first metatarsophalangeal (1stMPJ) joint stiffness
Marabelle L Heng¹,², Pui W Kong¹*
¹Physical Education & Sports Science Academic Group, National Institute of Education, Nanyang Technological University, Singapore
²Podiatry Department, Singapore General Hospital, Singapore

P14. Effects of boundary conditions on foot behaviour in the standing position in 3D finite element foot model
Shane Johnson¹*, Haihua Ou¹
¹University of Michigan and Shanghai Jiao Tong University Joint Institute, Shanghai, China.

P15. Validity and reliability of a novel subtalar joint axis of rotation locator measurement device
BH Kim, SC Lee, HD Lee, SY Lee*
Department of Physical Education, Yonsei University, Seoul, Korea

P16. Template-based landmark and region mapping of bone
Jaeil Kim¹, Sang Gyo Seo¹, Dong Yeon Lee¹, Jinah Park¹*
¹Department of Computer Science, Korea Advanced Institute of Science and Technology, Daejeon, Korea
²Orthopedic Surgery, Seoul National University Hospital, Seoul, Korea

P17. Uncover the identity of obstruction on the Achilles tendon
Ryuta Kinugasa¹*, John A. Hodgson¹, V. Reggie Edgerton¹, Shantanu Sinha¹
¹Department of Human Sciences, Kanagawa University, Yokohama, Kanagawa, Japan
²Department of Integrative Biology and Physiology, University of California Los Angeles, Los Angeles, California, USA
³Department of Radiology, University of California San Diego, San Diego, California, USA

P18. Comparison of biomechanical foot analyses between nine Flemish foot-experts
Ingrid Knippels¹*, Tom Saey¹, Inge Van den Herrewegen¹, Mario Broeckx¹, Kris Cuppens¹, Louis Peeraer¹²
¹MOBILAB, Thomas More Kempen, Geel, Belgium
²Faculty of Kinesiology and Rehabilitation Sciences, KU Leuven, Leuven, Belgium

P19. Measuring foot and ankle kinematics using a bi-plane fluoroscopic system
Seungbum Koo¹*, Kyoung M Lee, MD²
¹School of Mechanical Engineering, Chung-Ang University, Seoul, Korea
²Department of Orthopedic Surgery, Seoul National University Bundang Hospital, Seongnam, Korea
(P20) The flexibility of the transverse arch of the forefoot on the forefoot loading in the flat feet deformity
Shintarou Kudo1*, Yasuhiko Hatanaka2
1Graduate school of medical science, Suzuki University of Medical Science, Suzuki, Mie, Japan
2Department of Physiotherapy, Suzuki University of Medical Science, Suzuki, Mie, Japan

(P21) Effects of rest intervals on lower extremity kinematics and coupling during the Star Excursion Balance Test
Yongung Kwon1*, Dorsey S Williams1
1Department of Health and Human Performance, Virginia Commonwealth University, Richmond, VA, USA
2Department of Physical Therapy, Virginia Commonwealth University, Richmond, VA, USA

(P22) Biomechanical assessment of two different surgical treatments for the correction of flat foot
Lisa Berti1, Giulia Celin1, Paolo Caravaggi1, Sandro Giannini1,2, Alberto Leardini1
1Movement Analysis Laboratory, Istituto Ortopedico Rizzoli, Bologna, Italy
21st Division of Orthopedic Surgery, Istituto Ortopedico Rizzoli, Bologna, Italy

(P23) No relationship between foot posture and frontal knee alignment in healthy adolescents
Shinsuke Matsumoto*, Shigeharu Tanaka
Dept. of Physical Therapy, Kawasaki Junior College of Rehabilitation, Kurashiki, Okayama, Japan

(P24) Modelling of Forefoot Injuries Caused by Brake Pedal Loading - A Finite Element Analysis Case Study
Bisola Mutingwende1*, Robert Ashford1, Clive Neal-Sturgess1, Maxine Lintern1, Jens Lahr1
1Centre for Health and Social Care Research, Birmingham City University, UK
2Department of Mechanical Engineering, The University of Birmingham, UK
3Faculty of Technology, Engineering and the Environment, Birmingham City University, UK

(P25) Alterations in lower-extremity sagittal plane joint moments due to experimental knee pain and effusion during walking
Jihong Park1*, Devin C Francom2, Matthew K Seeley3, J Ty Hopkins3
1Department of Sports Medicine, Kyung Hee University, Yongin, Korea
2Department of Applied Mathematics and Statistics, University of Santa Cruz, Santa Cruz, USA
3Department of Exercise Sciences, Brigham Young University, Provo, UT, USA

(P26) Is it possible to predict optimal rocker shoe design using barefoot gait parameters?
Jonathan D Chapman1, Stephen J Preece1, Christopher J Nester1, Bjoern Braunstein1, Angela Höhne2, Gert-Peter Brüggermann1
1School of Health, Sport and Rehabilitation Sciences, University of Salford, UK
2Institute of Biomechanics and Orthopaedics, German Sport University, Cologne, Germany

(P27) Evaluating the effect of apex position and rocker in curved rocker shoes
Jonathan D Chapman1, Stephen J Preece1, Christopher J Nester1, Bjoern Braunstein1, Angela Höhne2, Gert-Peter Brüggermann1
1School of Health, Sport and Rehabilitation Sciences, University of Salford, UK
2Institute of Biomechanics and Orthopaedics, German Sport University, Cologne, Germany

(P28) Validity and repeatability of three commercially available in-shoe pressure measurement systems
Carina Price,* Daniel Parker, Christopher J Nester
Centre for Health Science Research, University of Salford, Greater Manchester, M6 6PU, UK

(P29) Impact of orthoses on imagined and actual walking
Pui C1,2*, Janin M1
1Applied Podiatry College, 7 Treguel, 86000 Poitiers, France
2Podiatrist, Office, 64 Emile Zola, 44550 Saint Malo de Guersac, France
3Podiatrist, PhD, 7 Treguel, 86000 Poitiers, France
### Poster Presentation Schedule

| Poster Number | Title                                                                 | Authors                                                                 | Institutions                                                                 |=
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<td>(P30)</td>
<td>Soft tissue artifact compensation in lower extremities using displacement relationship between anatomical landmarks and skin markers</td>
<td>Taebeum Ryu*, Moonsoo Shin</td>
<td>Department of Industrial and Management Engineering, Hanbat National University, Yusung, Daejeon, Korea</td>
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<tr>
<td>(P31)</td>
<td>Gender differences in segmental foot motions during gait using 3D multi-segment foot model</td>
<td>Sang Gyo Seo*, Dong Yeon Lee, Ji-Beom Kim, Seong Hyun Kim, Hye Sun Park, Hyo Jeong Yoo, Sung Ju Kim, Jihyeung Kim, Kyoung Min Lee, Chin Youb Chung, In Ho Choi</td>
<td>Department of Orthopedic Surgery, Seoul National University Hospital, Seoul, Korea&lt;br&gt;Department of statistics, Korea University, Seoul, Korea&lt;br&gt;Department of Orthopedic Surgery, Seoul National University Boramae Medical Center, Seoul, Korea&lt;br&gt;Department of Orthopedic Surgery, Seoul National University Bundang Hospital, Seongnam, Korea</td>
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<td>(P32)</td>
<td>Repeatability of a Multi-Segment Foot Model with 15-marker set in Normal Adults</td>
<td>Sang Gyo Seo*, Dong Yeon Lee, Ji-Beom Kim, Seong Hyun Kim, Hye Sun Park, Hyo Jeong Yoo, Sung Ju Kim, Jihyeung Kim, Kyoung Min Lee, Chin Youb Chung, In Ho Choi</td>
<td>Department of Orthopedic Surgery, Seoul National University Hospital, Seoul, Korea&lt;br&gt;Department of statistics, Korea University, Seoul, Korea&lt;br&gt;Department of Orthopedic Surgery, Seoul National University Boramae Medical Center, Seoul, Korea&lt;br&gt;Department of Orthopedic Surgery, Seoul National University Bundang Hospital, Seongnam, Korea</td>
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<tr>
<td>(P33)</td>
<td>Dynamic barefoot plantar pressure in gait and foot type biomechanics</td>
<td>Jinsup Song, Howard J Hillstrom, Michael Neary, Kersti Choe, William Brechue, Rebecca A. Zifchock, Steve Svoboda, Jim Furtado, Mandy Gibbons, Ibadete Thaqi, Jocelyn Hafer, Siobhan Mangani, Stephen Bartalini, Marian T Hannan</td>
<td>Temple University School of Podiatric Medicine, Philadelphia, Pennsylvania, USA&lt;br&gt;Hospital for Special Surgery, New York, New York, USA&lt;br&gt;United States Military Academy, West Point, New York, USA&lt;br&gt;Hebrew Senior Life, Harvard Medical School, Boston, USA</td>
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<tr>
<td>(P34)</td>
<td>Running on an unpredictable irregular surface changes lower limb biomechanics and subjective perception compared to running on a regular surface</td>
<td>Thorsten Sterzing*, Charlotte Apps, RuiDing, Jason Tak-Man Cheung</td>
<td>Sports Science Research Center, Li Ming (China) Sports Goods Co Ltd, Beijing, China&lt;br&gt;School of Sport and Exercise Sciences, Liverpool John Moores University, Liverpool, L3 3AF, UK</td>
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<td>(P35)</td>
<td>Assessment of tissue glycation on plantar soft tissue stiffness</td>
<td>Jee Chin Teoh, Taeyong Lee*</td>
<td>Department of Biomedical Engineering, National University of Singapore, Singapore</td>
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<td>(P36)</td>
<td>Effect of Deformation Depth on Plantar Soft Tissue Behavior</td>
<td>Jee Chin Teoh, Bena Lim, Taeyong Lee*</td>
<td>Department of Biomedical Engineering, National University of Singapore, Singapore</td>
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<td>(P37)</td>
<td>Prediction of plantar soft tissue stiffness based on gender, age, bodyweight, height and body mass index</td>
<td>Jee Chin Teoh, Taeyong Lee*</td>
<td>Department of Biomedical Engineering, National University of Singapore, Singapore</td>
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<tr>
<td>(P38)</td>
<td>Effect of sensorimotor orthoses on rearfoot motion in patients with Charcot-Marie-Tooth disease: a pilot study</td>
<td>Caleb Wegener*, Katrin Wegener, Karl-Heinz Schott, Joshua Burns</td>
<td>Discipline of Exercise and Sports Science, Faculty of Health Sciences, The University of Sydney, NSW, 1825, Australia&lt;br&gt;Pedorthic Clinic, Dee Why, NSW, 2099, Australia&lt;br&gt;Faculty of Health Sciences, The University of Sydney Institute for Neuroscience and Muscle Research, The Children’s Hospital at Westmead, Sydney, NSW, 2145, Australia</td>
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<td>39</td>
<td>Distal foot segment joint coupling patterns during walking gait</td>
<td>Stephen C Cobb*, Robin L Bauer, Mukta N Joshi</td>
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<td>1Department of Kinesiology, University of Wisconsin-Milwaukee, Milwaukee, WI 53201, USA</td>
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<td>2Robin Bauer was a graduate student in the MS Kinesiology program at the University of</td>
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<td>Wisconsin-Milwaukee at the time of the study, USA</td>
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<td>40</td>
<td>Development for generating electric power shoes having a vibrating</td>
<td>Jia Hroung Wu*, Wen Lan Wu</td>
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<td>sheet generator assembly</td>
<td>1Department of Industrial Management, Hsiuping University of Science and Technology,</td>
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<td>2Department of Sports Medicine, Kaohsiung Medical University, Kaohsiung City, Taiwan</td>
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<td>41</td>
<td>The effects of plantar-flexor static stretching on perturbation</td>
<td>Seong-gil Kim*, Goonchang Yuk, Gak Hwangbo</td>
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<td>recovery in the elderly</td>
<td>1Department of Physical Therapy, College of Rehabilitation Science, Daegu University,</td>
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<td>2Department of Physical Therapy, Yeungnam University Hospital, 170 Hyeonchung-ro, Namgu,</td>
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<td>42</td>
<td>Effects of heel height and wearing experience on human standing</td>
<td>Shuping Xiong*, Vanitysa D Hapsari</td>
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<td>balance</td>
<td>Ergonomics and Applied Biomechanics Laboratory, Ulsan National Institute of Science and</td>
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<td>Technology, Ulsan, Korea</td>
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<td>43</td>
<td>Analysis of vertical ground reaction force variables by Foot scan in</td>
<td>Hyun-Dong Kim*, Geun-Yeol Jo, NaMi Han, Mi-Ja Eom</td>
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<td>hemiplegic patients</td>
<td>1Department of Physical Medicine and Rehabilitation, Inje University, Busan, Korea</td>
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<td>2Department of Physical Medicine and Rehabilitation, Inje University, Busan, Korea</td>
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<td>The Effects of the Aeroball on Plantar Pressure during Isometric</td>
<td>Kyungock Yi*, Moon Haelee, Son Namjeong, Choi Jaewon, Won Haeryoung, Kim Kyungsun, Kim</td>
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<td>Hip Contractions</td>
<td>Chanmi, Yi Jihee, Kim Hwalee</td>
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<td>Kyungock Yi</td>
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<td>during Landing</td>
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<td>A classification of foot types of high school girls in South Korea</td>
<td>Saemi Shin*, Jongsuik Chun*</td>
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<td>1Symbiotic Life Tech., Yonsei University, Seodaemun-gu, Seoul, Korea</td>
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<td>2Dept. of Clothing and Textiles, Yonsei University, Seodaemun-gu, Seoul, Korea</td>
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<td>Bo Seong Kim, Su Min Yoon, Hoon Yong Yoon</td>
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<td>at Various Work Conditions</td>
<td>Department of Industrial and Management Systems Engineering, Dong-A University, Busan,</td>
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<td>The foot plantar pressures for patients with hallux valgus combines</td>
<td>Wen-Lan Wu*, Jina-Min Liang, Yuh-Min Cheng, Peng-Ju Huang, Jia-Hroung Wu</td>
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<td>with or without claw toe</td>
<td>1Department of Sports Medicine, Kaohsiung Medical University, Kaohsiung, Taiwan</td>
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**Sport Biomechanics Laboratory, University of Dong-A, Busan, Korea |
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Dongwook, Han, PhD, PT*  
*Department of Physical Therapy, Silla University, 700 Beon-gil, Baegyang-daero, Sasang-gu, Busan, Korea |
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Bong-Ok Kim, Soo-Kyung Bok, So-Young Ahn  
Department of Rehabilitation Medicine, School of Medicine, Chungnam National University, Daejeon, Korea |
| **(P52)** An analysis of functional insole on foot pressure distribution of shape memory material combinations  
Seung-Bum Park*, Kyung-Deuk Lee, Dae-Woong Kim, Jung-Hyeon Yoo, Kyung-Hun Kim  
Footwear Biomechanics Team, Footwear Industrial Promotion Center, Busan, Korea |
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Seung-Bum Park*, Kyung-Deuk Lee, Dae-Woong Kim, Jung-Hyeon Yoo, Kyung-Hun Kim  
Footwear Biomechanics Team, Footwear Industrial Promotion Center, Busan, Korea |
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Seung-Bum Park*, Kyung-Deuk Lee, Dae-Woong Kim, Jung-Hyeon Yoo, Kyung-Hun Kim, Jin-Hoon Kim  
*Footwear Biomechanics Team, Footwear Industrial Promotion Center, Busan, Korea  
1Design Center, Treksta INC, Busan, Korea |
| **(P55)** Plantar pressure distribution during treadmill walking in comfort shoes with PLA(Poly Lactic Acid) resins  
Seung-Bum Park*, Kyung-Deuk Lee, Dae-Woong Kim, Jung-Hyeon Yoo, Kyung-Hun Kim  
Footwear Biomechanics Team, Footwear Industrial Promotion Center, Busan, Korea |
| **(P56)** Pre-impact fall detection using an inertial sensor unit  
Soonjae Ahn, Isu Shin, Youngho Kim*  
Department of Biomedical Engineering and Institute of Medical Engineering, Yonsei University, Wonju, Gangwon, Korea |
| **(P57)** Biomechanical analysis of operations for chronic ankle instability  
Jeseong Ryu, Jongrang Son, Youngkoo Lee, Kyungtae Lee, Youngho Kim*  
1Department of Biomedical Engineering, Yonsei University, Wonju, Gangwon, Korea  
2Department of Orthopedic Surgery, Soochunhyang University, Bucheon, Gyeonggi, Korea |
| **(P58)** Alternative objective function to predict reasonable muscle forces using a Hill-type muscle model  
Jongsang Son, Hoyooon Lee, Jongman Kim, Youngho Kim*  
Department of Biomedical Engineering and Institute of Medical Engineering, Yonsei University, Wonju, Korea |
| **(P59)** High-pass-filter cut-offs optimization of the filter-based fatigue index during dynamic contractions  
Jungyoon Kim, Sunwoo Park, Youngho Kim*  
Department of Biomedical Engineering and Institute of Medical Engineering, Yonsei University, Wonju, Gangwon, Korea |
(P60) Biomechanical analysis on custom-made insoles in gait of idiopathic pes cavus
Jungkyu Choi1, Ji Yong Jung1, Yonggwan Won2, and Jung-Ja Kim3,4*
1Department of Healthcare Engineering, Chonbuk National University, Jeonju, Jeolabuk-do, Korea
2School of Electronics and Computer Engineering, Chonnam National University, Gwangju, Korea
3Division of Biomedical Engineering, Chonbuk National University, Jeonju, Jeolabuk-do, Korea
4Research Center of Healthcare & Welfare Instrument for the Aged, Chonbuk National University, Jeonju, Jeolabuk-do, Korea

(P61) Effects of the Upright Body Type Exercise Program on Foot Balance in Female High School Students
Nam-Young Son1, Joong-Sook Lee1,*, Jeong-Ok Yang1, Bomi-Jin Lee1, Dong-Wook Han1
1Department of Physical Education, College of Medical and Life Sciences, Silla University, Busan, Korea
2Department of Physical Therapy, College of Medical and Life Sciences, Silla University, Busan, Korea

(P62) Effects of different customized foot orthoses on isolated subtalar arthrodesis
Ceccaldi Edouard1,2,*, Janin M1,3
1Applied Podiatry College, 7 Treguel, 86000 Poitiers, France.
2Podiatrist, Office, 35 rue Sermonoise, 77380 Combs-la-Ville, France
3Podiatrist, PhD, Clinic, 7 Treguel, 86000 Poitiers, France

(P63) The effects of the angle between the sole and the heel of heeled footwear on single and double support time, stride duration and toe off plantar flexion of females
SAR Darshika1 TDMSB Dassanayake2
1&2Allied Health Sciences Unit, Faculty of Medicine, University of Colombo, Sri Lanka

(P64) The effect of rollover footwear on head and trunk posture during standing
Fateme pol1, Saeed Forghany1,2,*, Christopher Nester2, Atefe Rahimi1
1Musculoskeletal Research Centre, Isfahan University of Medical Sciences, Iran
2Centres for Health Sciences Research, University of Salford, UK

(P65) The Effect of Rollover footwear on Pain, Disability and Lumbar Posture in Patients with Low Back Pain
Atefe Rahimi1, Saeed Forghany1,2,*, Christopher Nester2, Fateme pol1
1Musculoskeletal Research Centre, Isfahan University of Medical Sciences, Iran
2Centres for Health Sciences Research, University of Salford, UK

(P66) The effect of three different insoles on balance in people with functional ankle instability
Khadijeh Bapirzadeh1, Akram Jamali1, Saeed Forghany1,2,*, Christopher Nester2, Sanam Tavakoli1, Fateme Hemmati1
1Musculoskeletal Research Centre, Isfahan University of Medical Sciences, Iran
2Centre for Health Sciences Research, University of Salford, UK

(P67) The effects of pronated foot posture and medial heel and forefoot wedge orthoses on static balance in older people
Fateme Hemmati1, Saeed Forghany1,2,*, Christopher Nester2
1Musculoskeletal Research Centre, Isfahan University of Medical Sciences, Iran
2Centre for Health Sciences Research, University of Salford, UK

(P68) Effects of laterally wedged insoles on static balance in patients with medial compartment knee osteoarthritis
Fariba Ahmadi1, Saeed Forghany1,2,*, Christopher Nester1, Richard Jones2
1Musculoskeletal Research Centre, Isfahan University of Medical Sciences, Iran
2Centre for Health Sciences Research, University of Salford, UK
(P69) The effect of cognitive task on ankle movement variability in athletes with Functional Ankle Instability
Sanam Tavakoli1, Saeed Forghany1,2*, Christopher Nester1, Akram Jamali1, Khadijeh Bapirzadeh1
1Musculoskeletal Research Centre, Isfahan University of Medical Sciences, Iran
2Centre for Health Sciences Research, University of Salford, UK

(P70) Association between foot types defined by static and dynamic measures, and the centre of pressure during gait
Su Liao1, Hannah L Javis2, Anmin Liu1, Christopher J Nester*, Peter P Bowden2, Richard K Jones, Kaiyu Xiong1
1Sport Science College, Beijing Sport University, Beijing, China
2School of Health Sciences, University of Salford, Salford, M6 6PU, UK

(P71) Active control of a powered ankle-foot prosthesis
Ashwin Needham*, Andrzei Ordys
School of Mechanical and Automotive Engineering, Kingston University, London, UK

(P72) 2-Dimensional foot FE models for clinical application in gait analysis
Alessandra Scarton1*, Annamaria Guiotto1, Zimi Sawachà 1, Gabriella Guarnier1, Angelo Avogaro2, Claudio Cobelli1
1Department of Information Engineering, University of Padova, Padova, Italy
2Department of Clinical Medicine and Metabolic Disease, University Polyclinic, Padova, Italy

(P73) Simplified finite model based evaluation of tissue stress distribution on anesthetic feet of Leprosy patients for 3 dimensional orthosis fabrication
Sathish K Paul1*, Sudesh Sivarasu1
1VIT University, Vellore - 632014, Tamil Nadu, India
2Lecturer & Project leader, Biomechanics, University of Cape Town, Cape Town, 7925, South Africa

(P74) Micro Cellular Rubber (MCR) - A boon for leprosy affected patients with anesthetic feet in preventing secondary impairments
Sathish K Paul1*, Edward Rajkumar1, Tina Mendis2
1Prevention of Impairment and Disability, The Leprosy Mission Trust India, New Delhi-110001, India
2Manager, MCR Unit, Vizinagaram, Andhra Pradesh - 531230, India
2Head, Sustainable Livelihoods, The Leprosy Mission Trust India-110001, New Delhi, India

(P75) The change of gait analysis on applying metatarsal-bar used 3D motion analysis
Se won Yoon1*, Jeong woo Lee1, Soo ji Park1, Woong sik Park1, Moon jeong Kim1
1Department of physical therapy, Kwangju women’s university, Kwangju, Korea
2Department of physical therapy, Graduate school, Kwangju women’s university, Kwangju, Korea
3Department of physical therapy, Kwangju women’s university, Kwangju, Korea
4Department of occupational therapy, Shinhwa rehabilitation clinic, Busan, Korea

(P76) The change of gait on shoes sole form
Se won Yoon1*, Jeong woo Lee1, Soo ji Park1, Woong sik Park1, Woon su, Cho1
1Department of physical therapy, Kwangju women’s university, Kwangju, Korea
2Department of physical therapy, Graduate school, Kwangju women’s university, Kwangju, Korea
3Department of physical therapy, Kwangju women’s university, Kwangju, Korea
4Department of occupational therapy, Kwangju women’s university, Kwangju, Korea
5Department of physical therapy, Nambu university, Kwangju, Korea

(P77) The effect of foot pressure on applying metatarsal-bar
Se won Yoon1*, Jeong woo Lee1, Soo ji Park1, Woong sik Park1, Seong kwan Jeong1
1Department of physical therapy, Kwangju women’s university, Kwangju, Korea
2Department of physical therapy, Graduate school, Kwangju women’s university, Kwangju, Korea
3Department of occupational therapy, Kwangju women’s university, Kwangju, Korea
4Department of physical therapy, Orthopedic medicine, Seoul
(P78) **Analysis on the Muscle Activity of Antebrachial Area at the Iron Swing of Male High School Golf Players**

Oh Cheong Hwan, Hong Soo Young*, Shin Eui Su, Bea Jae Hee  
*Physical Education, Chungnam National Univ., Gung-dong, Yuseong-gu, Daejeon, Korea

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(P79) **Knetic analysis on physical segments of forward breakfall of the martial arts**

Oh Cheong Hwan, Shin Eui Su*, Hong Soo Young, Bea Jae Hee  
*Physical Education, Chungnam National Univ., Gung-dong, Yuseong-gu, Daejeon, Korea

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(P80) **Effect of foot load changes on foot arch evaluation using foot pressure distribution data**

Kazuya Imaizumi*, Yumi Iwakami, Kazuhiko Yamashita  
*Division of Healthcare Informatics, Faculty of Healthcare, Tokyo Healthcare University, Tokyo, Japan

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(P81) **The effectiveness of intensive mobilization technique combined with capsular distension for adhesive capsulitis of the shoulder**

Sunwook Park, Hansuk Lee*  
*Department of physical therapy, Eulji University, Seongnam, Gyeonggi, Korea

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(P82) **The change of EMG during lifting a object from floor according to foot position**

Lee han suk*, Kim Jun Hoo  
1The Department of Physical Therapy, Eulji University, Korea  
2Jaseng hospital of korean eastern medicine, Korea

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(P83) **The effects of general warm up, specific warm up and taping on electrical activity of lower limb's muscles in reaction to sudden unloading while walking**

Tolue Sahari¹, Nader Farahpour¹, Hamidreza Mokhtarinia¹, Leyla Bavafa¹  
¹M.Sc. Islamic Azad University, Broojerd branch, Broojerd Iran  
²Full Professor, Bu Ali Sina University, Hamedan, Iran  
³Full Professor, Islamic Azad University, Hamedan branch, Hamedan, Iran  
⁴Assistant profgessor, Rehabilitation University of Tehran, Iran

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(P84) **A Biomechanical research of Foot Pressure for Lower Extremity in Gait wearing Trail Walking shoes**

Sae-Yeon Lee¹, Seong-Mi Kim¹, Yu-Jin Hwang¹, Kyoung-Youl Yoo¹, Seung-Bum Park*²  
¹Busanil Science High School, Busan, Korea  
²Footwear Biomechanics Team, Footwear Industrial Promotion Center, Busan, Korea
Guide for Oral Presentation

1. Time Schedule
   Presentation will be categorized by the field it covers and time schedule will be arranged considering those categories. We will give an announcement for specific schedule via e-mail.

2. Presentation File
   Presentations will be presented with a beam projector and must be prepared in MS PowerPoint format. In order to double check whether presentation works properly or not, please send the presentation to conference email (conference@i-fab2014.org) by March 28th 18:00pm KST (Korean Standard Time).

3. Preview Room
   Preview Room is located in room208, Convention Hall 2F, BEXCO.

4. Prompt attendance at the Session
   Please arrive in the conference room 10 minutes prior to the beginning of the session and be seated in the speaker’s seat.

5. Presentation time
   The presenter will be given 12 minutes for presentation and 3 minutes for Q&A session.

6. Computer
   Laptop computer will be available in the session room which will have Windows 7 installed. There will also be several software programs available on the computer including: Microsoft Office Windows7, Adobe Acrobat Reader, and Windows Media. Also presenters can bring their own computer.

Guide for Poster Session

1. Size : 841mm × 1189mm (A0 SIZE)
2. The poster must be written in English
3. The poster must be set up between 9 a.m. to 12 p.m. in April 9th and the presenter has to print out the poster by him/herself.
4. Poster session takes place in room201 and room202 in Convention Hall 2F, BEXCO. We will provide code number for slots to each presenter. We will soon send out an email regarding this information.
5. Time frame for Poster Presentation is 15:45~16:45, 9th Apr. and 10th Apr. Presenters are expected to answer the questions after the presentation.
6. The poster should be removed by the presenter at 18:00~19:00, 10th Apr.
7. We will provide the tools for putting up your posters on the frame board.
i-FAB 2014 Awards

Alex Stacoff Memorial Award (US$1000)
This award is presented in honour of Dr. Alex Stacoff and his pioneering contribution to the field of biomechanics. Award recipient is offered certificate and a monetary award as stipulated above.

Requirements: Candidates must be the first author of an abstract submitted for presentation and must have made major contribution to research presented in the abstract. The candidate must personally present the paper at i-FAB 2014.

i-FAB 2014 Best Podium Presentation Award (US$1000)
This award is presented to the best oral presentation, based on the decision of the committee. Award recipient is offered a certificate and a monetary award as stipulated above.

Requirements: Any candidate, who has personally presented his/her paper at i-FAB 2014, will be eligible for this award.

Samsung Research Award (US$1000)
This award honours excellence in graduate research in the field of foot and ankle biomechanics. The winner is selected based on the impacts and implications of their study, as well as the future benefits the study holds, onto the society as a whole. Award recipient is offered a certificate and a monetary award as stipulated above.

Requirements: Any candidate, who has personally presented his/her paper at i-FAB 2014, will be eligible for this award.

i-FAB 2014 Best Poster Presentation Award (US$1000)
This award is presented to the best poster presentation, based on the decision of the committee. Award recipient is offered a certificate and a monetary award as stipulated above.

Requirements: Any candidate, who has personally presented his/her poster at i-FAB 2014, will be eligible for this award.

LG Research Award (US$1000)
This award honours excellence in graduate research in the field of foot and ankle biomechanics. The winner is selected based on the impacts and implications of their study, as well as the future benefits the study holds, onto the society as a whole. Award recipient is offered a certificate and a monetary award as stipulated above.

Requirements: Candidates must be at a very early stage of their scientific career and to be eligible must not have received their PhD degree before the i-FAB 2014 congress. Current graduate students - including MS level students, are also eligible.
Busan Exhibition and Convention Center (Bexco)

Busan Exhibition and Convention Center (commonly known as BEXCO) is a convention and exhibition center located in Centum City, Haeundae-gu, Busan, South Korea. It has hosted a variety of events, notably as a concert venue for Koreans as well as international artists, such as Grammy Award winners Michael Bolton.
» From Gimhae International Airport

**Taxi**
- By taxi: on at Gimhae International Airport, off at BEXCO
- Distance 26.87km / Approximately 45 min

**Limousine**
- On at Gimhae International Airport stop, off at BEXCO stop
- Buses every 25 minutes, from new BEXCO Haeundae new city center to Gimhae International Airport
- First bus: 05:10 / Last bus: 19:50
- Fees: Adults 7,000 won / Children 4,500 won / Approximately 50 min

**Subway**
- On at Airport Station, Busan-Gimhae Line; transfer to line 2 at Sasang Station
- Line 2 from Sasang Station to Centum City Station; out at exit 1
- Fees: 1,900 won / Approximately 55 min

» Subway Lines

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**Line information**
- Airport line (Gimhae light rail) → Sasang Station (Line 2) → Centum City Station (Line 2)
- Number of stops: 24
From Busan Station

- By taxi: on at Busan Station, off at BEXCO
  - Distance 13.93km / Approximately 30 min

Express bus 1001
- On at Gimhae International Airport stop, off at BEXCO Centum City stop
  - Fee: 1,800 won / Approximately 30min

Normal bus 40
- On at Busan Station stop, off at BEXCO Centum City stop
  - Fee: 1,200 won / Approximately 40min

- On at Busan Station, Line 1; transfer to Line 2 at Seomyeon Station
- Line 2 from Seomyeon Station to Centum City Station; out at exit 1
  - Fees: 1,300 won / Approximately 45min

Subway Lines

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Line information
- Busan Station (Line 1) → Seomyeong Station (Line 2) → Centum City Station (Line 2)
- Number of stops: 19
2014 i-FAB Hotel (traveling@i-fab2014.org)

2014 i-FAB organizers have arranged event rates at 3 recommended hotels and will also provide a pick-up service to and from the conference venue(s). The hotels are the The Westin Hotel Busan (the main conference venue), the Grand Centem and paradise Hotel.

You can book the accommodation you prefer by sending an email to the 2014 i-FAB reservation staff (traveling@i-fab2014.org) regarding your check-in/check-out date and identify yourself as an 2014 i-FAB participant to get discounted rate. Several hotels are recommended to accommodate the congress participants. Shuttle buses will be provided from and to the venues.

The Westin Chosun Busan ★★★★★
2014 i-FAB HQ Hotel
Shuttle Operation, Recommendation 1
(Between Westine Chosun Busan Hotel and BEXCO Convention Hall)

Address
67, Dongbaek-ro, Haeundae-gu, Busan, Korea (612-822)

Home-page
http://www.echosunhotel.com/Ebusan.action

Facility
Beach Athletic Club Business Center Flower Boutique

From Gimhae International Airport
60 min. by Limousine bus

2014 i-FAB Special Price
199,400 won (including breakfast & VAT)

Haeundae Centum Hotel ★★★★
Near BEXCO Convention Hall, Recommendation 2

Address
(U-Dong)20, Centum 3-ro, Haeundae-Gu, Busan, Korea, 612-889

Home-page

Facility
Buffet Restaurant, Fitness & Sauna, Business Center

From Gimhae International Airport
60 min. by Limousine bus

2014 i-FAB Special Price
143,000 won (including breakfast & VAT)

Novotel Ambassador Busan ★★★★
No Shuttle, Recommendation 3

Address
1405-16 Jung-dong Haeundae-gu Busan Korea

Home-page
https://novotel.ambatelen.com/busan/main.amb

Facility
Business Center, Fitness Club, Gana Art Busan

Amenities
Bathroom articles, Free Wire, Wireless Internet

From Gimhae International Airport
60 min. by Limousine bus

2014 i-FAB Special Price
169,400 won (including breakfast & VAT)
2014 i-FAB Organizing Committee

Room 208, 14-55, 382-ro, Noksan industrial complex,
Kangseo-Gu, Busan, Republic of Korea

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