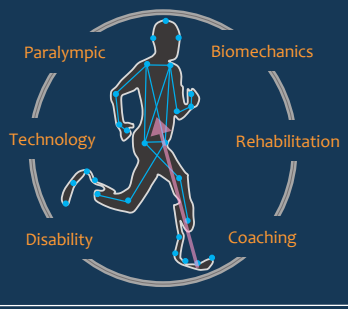
International Research Forum on Biomechanics of Running-specific Prostheses (IBRSP2016)



Feb. 2nd, 2016

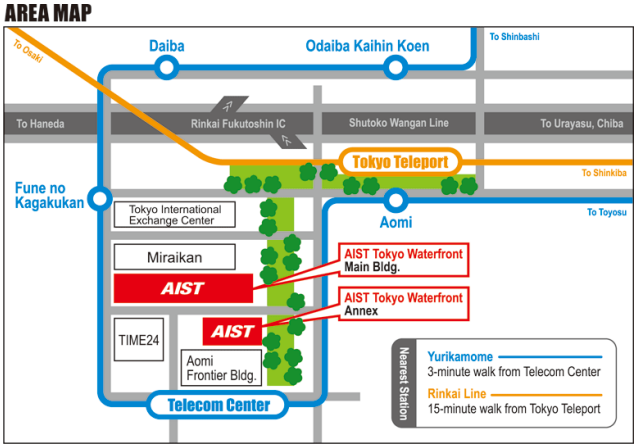
- **Venue:** AIST Tokyo Waterfront ANNEX, Tokyo, Japan
- **Chairman:** Dr. Kozo Uto, Director General, AIST Tokyo Waterfront
- **Organizer:** AIST Tokyo Waterfront and Waterfront Collaboration Center
- **Language:** English
- **Registration (free)*:** **rsp2016-ml@aist.go.jp (till Jan. 25th, 2016)**

*Please include your name, affiliation, job title, e-mail address and emergency contact number

Program

13:30-13:35	Opening remarks : **Dr. Kozo Uto** (AIST Tokyo Waterfront, JPN)
13:35-14:05	Oral presentation 1: **Dr. Hiroaki Hobara** (AIST Tokyo Waterfront, JPN)
14:05-14:35	Oral presentation 2 : **Dr. Satoru Hashizume** (AIST Tokyo Waterfront, JPN)
14:35-15:05	Oral presentation 3 : **Dr. Akihiko Murai** (AIST Tokyo Waterfront, JPN)
15:05-15:35	**Poster session** and Coffee break
15:35-16:35	Keynote lecture 1 : **Dr. Gerda Strutzenberger** (University of Salzburg, AUT)
16:35-17:35	Keynote lecture 2 : **Dr. Brian S Baum** (Regis University, USA)
17:35-17:40	Concluding remarks : **Dr. Mitsunori Tada** (AIST-DHRC, JPN)
18:00-	Networking Party

AREA MAP



By TRAIN

- Take Yurikamome and get off at Telecom Center station, then 3-minute walk from the station.
- Take Rinkai Line and get off at Tokyo Teleport station, then 15-minute walk from the station.

From Haneda Airport

Take Tokyo Monorail and get off at Tennozu Isle station. Then transfer to Rinkai Line bound for Shinkiba, and get off at Tokyo Teleport station.

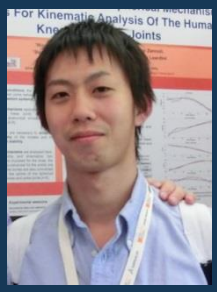
National Institute of Advanced Industrial Science & Technology (AIST) Tokyo Waterfront Annex 11F , 2-4-7, Aomi, Koto-ku, Tokyo 135-0064, Japan. E-mail: rsp2016-ml@aist.go.jp

Speaker's biography

Oral presentation 1: Dr. Hiroaki Hobara

Spatiotemporal parameters in amputees sprinters

Dr. Hiroaki Hobara is a research scientist at the Digital Human Research Center, National Institute of Industrial Science and Technology (AIST), Tokyo, Japan. He received his PhD in Human Sciences from Waseda University (2008), and completed his post-doctoral training at National Rehabilitation Center for Persons with Disabilities (Japan), and University of Maryland, College Park (USA). Dr. Hobara received Promising Young Scientist Award from International Society of Biomechanics (ISB) in 2013. His research focus is jump and running mechanics, amputee locomotion, and prosthetic sprinting.



Oral presentation 2: Dr. Satoru Hashizume

Key kinematic parameters influencing sprint performance in transfemoral amputees: A deterministic model approach

Dr. Satoru Hashizume is a post doctoral researcher at the Human Informatics Research Institute, National Institute of Industrial Science and Technology (AIST), Tokyo, Japan. He received his PhD in Sports Science from Waseda University (2013), and completed his post-doctoral training at Juntendo University as a JSPS postdoctoral fellow (2013-2015). His research focus is three dimensional joint mechanics, musculoskeletal mechanics and prevention of running-related musculoskeletal injuries.

Oral presentation 3: Dr. Akihiko Murai

Kinematics and Dynamics Analysis of Prosthetic Sprinting on DhaibaWorks

Dr. Akihiko Murai received his B.S. in Mechanical Engineering, M.S., and Ph.D. degrees in Mechano-Informatics in 2003, 2005, and 2009 respectively from the University of Tokyo, Japan. He is currently a Research Scientist at National Institute of Advanced Industrial Science and Technology (AIST). Prior to joining AIST, he was a Project Assistant Professor at the University of Tokyo, and a Postdoctoral Researcher at Disney Research, Pittsburgh. Dr. Murai is a recipient of Robotics-Mechatronics Division Annual Prize (2010), SICE Research Award (2009), and JSPS Research Fellowship for Young Scientists (2009). His research interests include anatomical human modeling, human neuro-musculoskeletal system, human motion measurement and analysis, and character animation.

Keynote lecture 1: Dr. Gerda Strutzenberger

Start and early acceleration performance in amputee sprinting

Dr. Gerda Strutzenberger is a Senior Scientist at the University of Salzburg, Austria. She received her PhD at the KIT, Germany (2011), and undertook a research sabbatical at the Cardiff Metropolitan University, UK (2013-14), where she analyzed amputee sprint-start performance. Her research interest covers clinical biomechanics (amputee locomotion, ACL-injury, obesity) and sports performance biomechanics (sprinting, cycling, football). She received the Hans-Gros New Investigator Award 2012 and presented her research in a young-blood keynote lecture (ISBS, 2015) as well as in applied sessions (ISBS, 2014; ZASS, 2015). She also works as Vice President for Conferences for the ISBS.

Keynote lecture 2: Dr. Brian S Baum

Running-Specific Prostheses: Adaptations, Injury Risk, and Promoting Physical Activity

Dr. Brian S. Baum is an Assistant Professor in the Health and Exercise Science Program within the School of Physical Therapy at Regis University in Denver, Colorado, USA. He received his PhD in Biomechanics from the University of Maryland, College Park (2012). His past positions include Principal Scientist and Portfolio Manager in the US Department of Defense's Clinical and Rehabilitative Medicine Research Program and Biomechanical Engineer for the Center for Performance & Clinical Research at Walter Reed Army Medical Center in Washington, DC. His research focuses on understanding adaptive mechanisms, performance, and injury risks during amputee walking and running.

Speaker's biography

Poster presentation 1

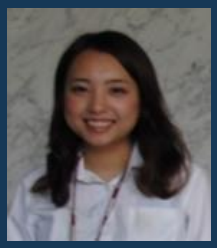
An Investigation into the Evaluation of Mechanical Properties of Running-Specific Prostheses

Dr. Yasuhiro Nishikawa is a chief researcher at the Tokyo Metropolitan Industrial Technology Research Institute (TIRI), Tokyo, Japan. He holds a Ph.D in Engineering from Doshisha University (2005). He performs test measurements and analysis of the commercial products and materials for the small and medium enterprises. His interest mainly focuses on the fatigue durability of carbon fiber reinforced plastics (CFRP). He continues research and development of the assistive devices using CFRP spring for approximately 5 years.

Poster presentation 2

Review of prosthetic knee joints in amputee locomotion

Dr. Koh Inoue is currently an assistant professor at the Department of Intelligent Mechanical Systems Engineering, Kagawa University, Japan. He received Ph.D. in Human Sciences from Waseda University (2011), and then experienced a research assistant at Waseda University, and a post-doctoral fellow at Kagawa University. Since he moved to Kagawa University, he has got involved in an industry-academia-government collaboration project, the Regional Innovation Strategy Support Program initiated by the Ministry of Education, Culture, Sports, Science and Technology in Japan. In the project, his research focuses on development of passive mechanism of knee joint unit for transfemoral prosthesis.



Poster presentation 3

Vertical stiffness of amputee sprinters using running-specific prostheses

Ms. Yoko Sano is a graduate student majoring in Mechanical Engineering at the Tokyo University of Science (TUS) and a technical staff at the Digital Human Research Group, National Institute of Advanced Industrial Science and Technology (AIST). Her major research focus is the lower limb kinematics and kinetics of lower extremity amputees during sprinting. Her current research is the spring-like leg function in transfemoral amputees, leading to improved performance.

Poster presentation 4

Ground reaction forces in 1E90 Sprinter and Cheetah Xtreme: A case study

Mr. Atsushi Makimoto is a Master course student in Mechanical Engineering at the faculty of Science and Technology in Tokyo University of Science (TUS), Chiba, Japan. His research interest is injury preventions during running. For his bachelor thesis, he focuses on running related injury, particularly overuse injury for habitual runners. His current research focuses mainly on the identification of risk factors for injury of lower extremity amputees during running and sprinting.

Poster presentation 5

Bilateral differences in Transfemoral locomotion gaits: walking and running

Ms Queenie Tan Lin Ling is an undergraduate student from Nanyang Technological University of Singapore who is pursuing a bachelor degree in Sport Science and Management. In addition to pursuing her degree, she is also training in the Human Informatics Research Institute, National Institute of Industrial Science and Technology (AIST), Tokyo, Japan. Currently, Ms Queenie is engaged in research activities focusing on the locomotion performances of amputees under the guidance of Dr. Hiroaki Hobara in AIST. From this work she developed an interest in the symmetry of locomotion in amputees and how it differs from able-bodies.