

ISEK 2016 Program

Please note that the program is Subject to change

For a more detailed document outlining the presentation title, and author list of each talk – please [click here](#)

S. – symposia session

O. – individual oral session

Tuesday, July 5

Pre-Congress Workshops (please [click here](#) for additional workshop information)

WS 1A: Motor unit decomposition: Techniques and applications

WS 1B: ISB Working Group on Motor Control in Biomechanics

WS 2: 3D Multiscale modeling of neuromuscular mechanics

WS 3: Implantable technologies for Electrophysiological Recording and Stimulation

WS 4: Investigation of muscle physiology, force generation and tissue dynamics through imaging

WS 5: The role of afferent feedback in generating our most rapid motor responses

Opening of ISEK Congress 2016

18:00 – 20:00 **Opening Reception**
Rehabilitation Institute of Chicago (RIC)

Wednesday, July 6

08:00 – 09:30 **Keynote presentation**
[John Rogers, University of Illinois](#)
Epidermal Electronics for Electrophysiological Kinesiology

09:30 – 10:00 **Break**

10:00 – 11:30 **Parallel Sessions**

S.1. *Neuromechanics of Human Locomotor Stability: Theoretical Insights and Clinical Applications*

Chairs:

Participants:

John Misiaszek, University of Alberta

Riley Sheehan, Military Performance Lab, Center for the Intrepid

Jesse Dean, Medical University of South Carolina

Joseph Lee, Marquette University

James Finley, University of Southern California

Manoj Srinivasan, The Ohio State University

S.2. *Motor Unit Control*

Chair: Joshua Kline

Participants:

Joshua Kline, Delsys, Inc

Xiaogang Hu, University of North Carolina-Chapel Hill

Madeleine Lowery, University College Dublin

Matt Stock, Texas Tech University
Paola Contessa, Delsys Inc
Carlo De Luca, Boston University

O.1. Rehabilitation Technologies I

Chairs:

Participants:

Shihomi Kawasaki, Graduate School of Medicine, Kyoto University
Edward Washabaugh IV, University of Michigan
Eduardo Rocon, CSIC
Koji Ohata, Kyoto University
Ingrid Schut, Delft University of Technology
James Agostinucci, University of Rhode Island

O.2. Neuromechanics I

Chairs:

Participants:

Gunnar Wahmkow, Potsdam University
Daniel Ludvig, University of Montreal
Hongchul Sohn, Northwestern University
Yuan Yang, Delft University of Technology
Alessio Gallina, University of British Columbia
Diego Guarin, McGill University

11:30 – 13:00

Parallel Sessions

O.3 EMG: modeling

Chairs:

Participants:

Ernest Kamavuako, Aalborg University
Shanette Go, Mayo Clinic
Edward (Ted) Clancy, Worcester Polytechnic Institute
Lara Green, Brock University
Kadie Wright, Institute of Biomedical Engineering

O.4 Rehabilitation Technologies II

Chairs:

Participants:

Samuel Acuña, University of Wisconsin-Madison
Patrick Crago, Case Western Reserve University
Taian Vieira, Politecnico di Torino
Eugen Romulus Lontis, Aalborg University
Daisuke Bai, Heisei Memorial Hospital
Misato Kasuya, The University of Electro-Communications

O.5 Neuromechanics II

Chairs:

Participants:

Rachel Hawe, Northwestern University
Bart van Veen, University of Sheffield
Karl Zelik, Vanderbilt University
Jessica Allen, Emory University
Derek Zwambag, University of Guelph

Mariah Whitmore, Northwestern University

O.6 Motor Units I

Chairs:

Participants:

Martin Héroux, Neuroscience Research Australia

Michael Asmussen, University of Calgary

Claudio Orizio, University of Brescia

Jim Potvin, McMaster University

Luigi Fattorini, Sapienza University of Rome

Winnie Jensen, Sensory-Motor Interaction

13:00 – 14:00

Lunch

14:00 – 15:00

Keynote Presentation

[Birgit Juul-Kristensen, University of Southern Denmark](#)

Why is it important to use EMG in Clinical research of musculoskeletal disorders

15:00 – 15:30

Break

15:30 – 17:00

Parallel Sessions

S.3. *Muscle mechanics and neural control determining fine hand-motor tasks*

Chairs: Dick F. Stegeman, Radboud University Medical Centre, Nijmegen

Huub Maas, VU University, Faculty of Behavioural and Movement Sciences

Participants:

Huub Maas, VU University, Amsterdam

Peter Amadio, Mayo Clinics

Nathalie van Beek, VU University

Naveed Ejaz, University of Western Ontario

Sigrid Dupan, Radboudumc

Peter Keir, McMaster University

S.4. *Neuromodulatory Strategies for Improving Motor Control after CNS Damage*

Chair: Aiko K.Thompson, University of South Carolina

Participants:

Robert Chen, University of Toronto,

Monica A. Perez, University of Miami

W. Zev Rymer, Northwestern University

Aiko K.Thompson, University of South Carolina

Janet Taylor, University of New South Wales

Jonathan R. Wolpaw, New York State Dept Health

S.5. *Joint ISEK-ISB symposium*

Chair: Karen Sjøgaard, University of Southern Denmark

Glen Lichtwark, University of Queensland

Introduction:

Catherine Disselhorst-Klug, RWTH Aachen University

Participants:

Nagarajan Manickaraj, Griffith University

Thomas Grøndberg, University of Southern Denmark,

Marit Thielemann, University of Oslo
Jantsje Pasma, Delft University of Technology
Andrew Cresswell, The University of Queensland

S.6. *Stepping out of the lab: EMG in daily life*
Chair: Kat M. Steele, University of Washington

Participants:

Roosbeh Ghaffari, MC10 Inc.
Kee Moon, San Diego State University
Nanshu Lu, University of Texas at Austin
Levi Hargrove, Rehabilitation Institute of Chicago
Torey Gilbertson, University of Washington
Greg Gage, Backyard Brains

17:00 – 18:30

Poster Session I

End of Day 1

Thursday July 7th

08:00 – 09:00 **Keynote Presentation**

[Irene Davis, Harvard Medical School](#)

The Foot Core: A new paradigm

09:00 – 09:30 **Break**

09:30 – 11:00 **Parallel Sessions**

S.7. *Synchrony and frequency in neuromuscular control*

Chair: Francisco Valero-Cuevas

Participants:

Christopher Laine, University of Southern California

John Trinder, University of Melbourne

Francisco Valero-Cuevas, University of Southern California

Tjeerd Boonstra, University of New South Wales

Francesco Negro, Universitätsmedizin Göttingen

Kevin Keenan, University of Wisconsin-Milwaukee

S.8. *Neuromuscular Electrical Stimulation: Time to Turn the Page*

Chairs: Nicola Maffiuletti, Schulthess Clinic

Marco Minetto, University of Turin

Participants:

Dave Collins, University of Alberta

Nicola Maffiuletti, Schulthess Clinic

Marco Minetto, University of Turin

Milos Popovic, University of Toronto

Jennifer Stevens-Lapsley, University of Colorado

Marco Aurelio Vaz, Universidade Federal do Rio Grande do Sul

O.7 *EMG: signal processing*

Chairs:

Participants:

Asim Waris, Aalborg University

Yiyang Shi, University of New Brunswick

J. Lucas McKay, Emory University and Georgia Tech

Didier Staudenmann, University of Fribourg, Movement and Sport Science

David Hofmann, Emory University

Kate Bibbings, Manchester Metropolitan University

O.8 *Motor performance and Ergonomics*

Chairs:

Participants:

Bente Rona Jensen, University of Copenhagen

Linard Filli, University Hospital Zurich

D Adam Quirk, Dalhousie University

Yumna Albertus, University of Cape Town

Jonas Martens, KU Leuven

Tessy Luger, Vrije Universiteit Amsterdam

11:00 – 12:30

Parallel Sessions

O.9 EMG: novel applications

Chairs:

Participants:

Clare Davidson, University College Dublin
Chiara Rabotti, Eindhoven University of Technology
Matthew Flood, University College Dublin
Katharina Quinlan, Northwestern University Feinberg School of Medicine
Tania Pizzari, La Trobe University
Adam Semciw, University of Queensland

O.10 Sensorimotor control and learning

Chairs:

Participants:

Keith Gordon, Northwestern University
José Luis Pons, Cajal Institute CSIC
Rongnian Tang, Rehabilitation Institute of Chicago
Paul Hodges, University of Queensland
Marit Thielemann, University of Oslo
Eneida Suda, University of São Paulo

O.11 Novel measurement techniques

Chairs:

Participants:

Roger Whittaker, Newcastle University
Didier Staudenmann, University of Fribourg, Movement and Sport Science
Eduardo Martinez-Valdes, University of Potsdam
Alessandro Del Vecchio, University of Rome
Tessy Luger, Vrije Universiteit Amsterdam
Adam Jeff Kilby, Auckland University of Technology

O.12 Motor Units II

Chairs:

Participants:

Edward (Ted) Clancy, Worcester Polytechnic Institute
Kevin McGill, VA Palo Alto Health Care System
Kathrin Koch, RWTH Aachen University
Hélio Cabral, Universidade Federal do Rio de Janeiro
Iva Stojkowska, Northwestern University
Maurice Mohr, University of Calgary

12:30 – 13:30

Lunch

13:30 – 14:30

Keynote Presentation

[W. Zev Rymer, Rehabilitation Institute of Chicago \(RIC\)](#)

Clinical Applications for advanced electromyographic techniques: A field in transition

14:30 – 15:00 **Break**

15:00 – 16:30 **Parallel Sessions**

S.9. *Implementation of Impairment Based Neuro-Rehabilitation Devices and Technologies following Brain Injury*

Chair: Julius Dewald, Northwestern University

Participants:

Julius Dewald, Northwestern University
Sean Dukelow, Hotchkiss Brain Institute/University of Calgary
Michael Ellis, Northwestern University
Netta Gurari, Northwestern University
Arno Stienen, University of Twente
Frans van der Helm, Delft University of Technology

S.10. *Neural mechanisms underlying falls and impaired balance: an introspective from animal to patient*

Chair: Claire Honeycutt, Arizona State University

Participants:

Claire Honeycutt, Arizona State University
Boris Prilutsky, Georgia Institute of Technology
Joyce Fung, McGill University
John Misiaszek, University of Alberta
Jacques Duysens, Katholieke Universiteit Leuven
J. Lucas McKay, Emory University and Georgia Tech

S.11. *EMG Signal Analysis in Clinical Applications*

Chair: Madeleine Lowery University College Dublin

Participants:

Dick Stegeman, Radboud University Nijmegen
Ales Holobar, University of Maribor
Ping Zhou, University of Texas
Stephanie Madill, University of Saskatchewan
Lara McManus, University College Dublin
Bernd Lapatki/Hans van Dijk, University of Ulm

S.12. *Spastic muscle and its treatment using botulinum toxin: new viewpoints with major implications*

Chair: Can A. Yucesoy, Boğaziçi University, Istanbul, Turkey

Participants:

Can A. Yucesoy, Boğaziçi University, Istanbul, Turkey
Richard Lieber, Rehabilitation Institute of Chicago
Adam Shortland, King's Collage London, UK
Sabrina Lee, Northwestern University, Chicago, USA
Rafael Fortuna, University of Calgary, Canada
Filiz Ates, Waseda University, Tokyo, Japan

16:30 – 18:30 **Poster Session II**

19:30 – 23:00 **Conference Banquet**
The Mid America Club

Friday July 8th

08:00 – 09:30

Parallel Sessions

S.13. *Prosthetics to Orthotics: Transferable Expertise*

Chair: Kostas Nizamis, University of Twente

Participants:

Derek Kamper, Illinois Institute of Technology

Thierry Keller, Tecnia Research and Innovation

Dick Plettenburg, Delft University of Technology

Dario Farina, University Medical Center Goettingen

Elliott Rouse, RIC / Northwestern University

Arno Stienen, University of Twente

S.14. *Clinical applications of muscle synergies*

Chair: Kat M. Steele, University of Washington

Participants:

Jason Kutch, University of Southern California

Jinsook Roh, Temple University

Vincent C. K. Cheung, the Chinese University of Hong Kong

Gelsy Torres-Oviedo, University of Pittsburgh

Benjamin Shuman, University of Washington

Andrew Sawers, University of Illinois at Chicago

O.13 *Muscle Physiology*

Chairs:

Participants:

Kelsey Gsell, University of Guelph

Bart Bolsterlee, Neuroscience Research Australia (NeuRA)

Richard Lieber, Rehabilitation Institute of Chicago

Angela Dieterich, University Medical Center Goettingen

Federica Sammali, Eindhoven University of Technology

Filiz Ates, Waseda University

O.14 *Movement Disorders*

Chairs:

Participants:

Jolanda Roelofs, Radboud university medical center

Sang Hoon Kang, Northwestern University

Laura Diamond, University of Melbourne

D Adam Quirk, Dalhousie University

Benjamin Binder-Markey, Northwestern University

Joseph Kopke, Northwestern University

09:30 – 10:00

Break

10:00 – 11:00

Keynote Presentation

[Doug Weber, University of Pittsburgh](#)

Feeling the force: DARPA's HAPTIX program to create prosthetic hands that restore touch sensations and proprioception

11:00 – 12:00

General Assembly

12:00 – 13:30 **Lunch & Poster Session III**

13:30 – 15:00 **Parallel Sessions**

S.15. *Multichannel EMG: decomposition and other applications*

Chair: Dario Farina, University Medical Center Göttingen
Ales Holobar, University of Maribor

Participants:

Uros Manacinski, University of Maribor
Taian Vieira, Politecnico di Torino
Bernd Lapatki, University of Ulm
Francesco Negro, Universitätsmedizin Göttingen
Laura Miller McPherson, Florida International University
CJ Heckman, Northwestern University

S.16. *The Mobilize Center: accelerating movement science with big data*

Chair: Jennifer Hicks, Stanford University

Participants:

Jennifer Hicks, Stanford University
Katherine Steele, University of Washington
Sean Osis, University of Calgary
Eni Halilaj, Stanford University
Ahmet Erdemir, Cleveland Clinic
Matthew Smuck, Stanford University

S.17. *Practical Application of Electrophysiology and Kinesiology*

Chair: Tohru Kiryu, Niigata University

Participants:

Kohei Watanabe, Chukyo University
Toshihiro Kawase, Tokyo Institute of Technology
Masaki Yoshida, Osaka Electro-Communication University
Makoto Yoshizawa, Tohoku University
Ryu Kato, Yokohama National University

S.18. *Intermittent control*

Chair: Ian Loram, Manchester Metropolitan University

Participants:

Cornelis van de Kamp, Delft University of Technology
Ian Loram, Manchester Metropolitan University
Ryan Cunningham, Manchester Metropolitan University
Henrik Gollee, University of Glasgow
Scott Beardsley, Marquette University
Jose Alvarez Martin, University of Glasgow
James Patton, University of Illinois at Chicago (UIC)

15:00 – 15:30 **Break**

15:30 – 16:30 **Keynote Presentation, Sponsored by ISB**
[Scott Delp, Stanford University](#)

16:30 – 17:00 **Awards**

17:00 – 17:30 **Closing Reception, Sponsored by ISB**