Thursday, February 18, 2021 (Eastern Time)

10:00 am – 10:15 am Opening Remarks
John Ngai, Ph.D., NIH/NINDS/BRAIN

10:15 am – 11:15 am Session 1: Electromagnetic Recording Technologies
Moderator: Andrea Wijtenburg, Ph.D., NIH/NIMH

10:15 am – 10:35 am A Wearable Functional-Brain-Imaging System with Full-Head Coverage and Enhanced Spatiotemporal Resolution to Study Complex Neural Circuits in Human Subjects
Peter Schwindt, Ph.D., Sandia National Laboratories

10:35 am – 10:55 am 4D Transcranial Acoustoelectric Imaging for High Resolution Functional Mapping of Neuronal Currents
Russell S. Witte, Ph.D., Department of Medical Imaging, University of Arizona

10:55 am – 11:15 am Dissemination of Magnetoencephalography (MEG) Technologies
Miikka Putaala, MEGIN OY, Helsinki, Finland

11:15 am – 11:45 am Session 1: Electromagnetic Recording Technologies Panel Discussion (30 minutes)
Discussants: Julia Stephen, Ph.D., The Mind Research Network
Bin He, Ph.D., Carnegie Mellon University
Matti Hamalainen, Ph.D., Massachusetts General Hospital
Yoshio Okada, Ph.D., Boston Children’s Hospital
John Mosher, Ph.D., The University of Texas at Houston
Svenja Knappe, Ph.D. University of Colorado, Boulder

11:45 am – 12:15 pm East Coast Lunch Break (30 minutes)

12:15 pm – 2:15 pm Session 2: Optical and Acoustic Technologies
Moderator: Cheri Wiggs, Ph.D., NIH/NEI

12:15 pm – 12:35 pm Wireless High-Density Diffuse Optical Tomography for Decoding Brain Activity
Joseph Culver, Ph.D., Washington University at St. Louis

12:35 pm – 12:55 pm Time-Gated Diffuse Correlation Spectroscopy for Functional Imaging of the Human Brain
Maria Angela Franceschini, Ph.D., Athinoula A. Martinos Center, Massachusetts General Hospital

12:55 pm – 1:15 pm The Neuroscience of Everyday World- A Novel Wearable System for Continuous Measurement of Brain Function
David Boas, Ph.D., Boston University

1:15 pm – 1:35 pm Massively Parallel High-Speed 3D Functional Photoacoustic Computed Tomography of the Adult Human Brain
Lihong Wang, Ph.D., California Institute of Technology
1:35 pm - 1:55 pm  Dissemination of Optical Imaging Technologies  
**Patrick Britz**, Ph.D., NIRx GmbH, Germany

1:55 pm - 2:15 pm  Dissemination of Transcranial Ultrasound Imaging Technologies  
**Claudia Errico**, Ph.D., Phillips Research North America

2:15 pm – 3:00 pm  Session 2: Optical and Acoustic Technologies Panel Discussion (45 minutes)  
Discussants:  
- Dan Razansky, Ph.D., M.Sc., ETH  
- Joy Hirsch, Ph.D., Yale University  
- **Heather Bortfeld**, Ph.D., University of California, Merced  
- **Charles A. Nelson**, Ph.D., Boston Children’s Hospital, Harvard Medical School  
- Megan Blackwell, Ph.D., Massachusetts Institute of Technology, Lincoln Laboratory  
- Charles Liu, M.D., Ph.D., University of Southern California  
- Mary Lou Jepsen, Ph.D., Openwater

3:00 pm - 3:30 pm  West Coast Lunch Break (30 minutes)

3:30 pm – 4:50 pm  Session 3: Molecular Imaging Technologies  
Moderator: **Yuan Luo**, Ph.D., NIH/NIA

3:30 pm – 3:50 pm  Ultra High-Resolution Brain PET Scanner for in-vivo Autoradiography Imaging  
**Georges El Fakhri**, Ph.D., Gordon Center for Medical Imaging, Massachusetts General Hospital

3:50 pm – 4:10 pm  NeuroExplorer: Ultra-High-Performance Human Brain PET Imager for Highly-resolved In Vivo Imaging of Neurochemistry  
**Richard Carson**, Ph.D., Yale University

4:10 pm – 4:30 pm  Development of the Human Dynamic Neurochemical Connectome Scanner  
**Ciprian Catana**, M.D., Ph.D., Athinoula A. Martinos Center, Massachusetts General Hospital

4:30 pm – 4:50 pm  Dissemination of Molecular Imaging Technologies  
**James Williams**, Ph.D., Siemens Molecular Imaging

4:50 pm – 5:20 pm  Session 3: Molecular Imaging Technologies Panel Discussion (30 minutes)  
Discussants:  
- Tarun Singhal, Ph.D., Brigham & Women’s Hospital  
- **Jorge Sepulcre**, Ph.D., Harvard University  
- **Karmen Yoder**, Ph.D., Indiana University School of Medicine  
- Simon Cherry, Ph.D., University of California, Davis  
- **Heidi Jacobs**, Ph.D., Harvard University  
- Julie Price, Ph.D., Massachusetts General Hospital

5:20 pm  Adjourn
Friday, February 19, 2021 (Eastern Time)

10:00 am – 11:40 am  Session 4: Hemodynamic Imaging Technologies
Moderator: Shumin Wang, Ph.D., NIH/NIBIB

10:00 am – 10:20 am     Imaging Human Brain Function with Minimal Mobility Restrictions
Michael Garwood, Ph.D., University of Minnesota

10:20 am - 10:40 am     Elementary Neuronal Ensembles to Whole Brain Networks: Ultrahigh Resolution Imaging of Function and Connectivity in Humans
Kamil Ugurbil, Ph.D., University of Minnesota

10:40 am – 11:00 am     Lightweight, Compact, Low-Cryogen, Head-Only 7T MRI for High Spatial Resolution Brain Imaging
Thomas Foo, Ph.D., GE Research

11:00 am – 11:20 am     Connectome 2.0: Developing the Next Generation Human MRI Scanner for Bridging Studies of the Micro-, Meso- and Macro-Connectome
Susie Huang, M.D., Ph.D., Athinoula A. Martinos Center, Massachusetts General Hospital

11:20 am – 11:40 am     MRI Corticography: Developing Next Generation Microscale Human Cortex MRI Scanner
David Feinberg, Ph.D., University of California, Berkeley

11:40 am - 12:10 pm    East Coast Lunch Break (30 minutes)

12:10 pm - 2:10 pm  Session 4 (Cont’d): Hemodynamic Imaging Technologies

12:10 pm – 12:30 pm     Breaking Spatiotemporal Barriers of MR Imaging Technologies to Study Human Brain Function and Neuroenergetics
Wei Chen, Ph.D., University of Minnesota

12:30 pm – 12:50 pm     High SNR Functional Brain Imaging using Oscillating Steady State MRI
Douglas Noll, Ph.D., University of Michigan

12:50 pm – 1:10 pm     A Magnetic Particle Imager (MPI) for Functional Brain Imaging in Humans
Larry Wald, Ph.D., Athinoula A. Martinos Center, Massachusetts General Hospital

1:10 pm – 1:30 pm     Dissemination of Magnetic Resonance Imaging (MRI) Technologies
Bryan Mock, Ph.D., GE Healthcare

1:30 pm – 1:50 pm     Dissemination of Magnetic Resonance Imaging Detector Technologies
Patrick Ledden, M.D., Ph.D., Nova Medical Inc.
1:50 pm – 2:10 pm  **Dissemination of Magnetic Particle Imaging (MPI) Technologies**  
*Patrick Goodwill, Ph.D., Magnetic Insight Inc*

2:10 pm – 2:40 pm  **West Coast Lunch Break (30 minutes)**

2:40 pm – 3:40 pm  **Session 4: Hemodynamic Imaging Technologies Panel Discussion (1 hour)**
Discussants:  
*Bruce Rosen, M.D., Ph.D., Massachusetts General Hospital*  
*Angela Laird, Ph.D., Florida International University*  
*Luis Hernandez-Garcia, Ph.D., University of Michigan*  
*Todd Constable, Ph.D., Yale University*  
*Penny Gowland, M.Sc., University of Nottingham*  
*Peter Bandettini, Ph.D., NIH/NIMH*  
*Deanna Barch, Ph.D., Washington University in St. Louis*  
*Brian Wandell, Ph.D., Stanford University*  
*Rebecca Ramb, Ph.D., Siemens*

3:40 pm  **Adjourn**

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**Workshop Presentations Playlist**

**Workshop Steering Committee**

*Kari Ashmont (NINDS), Yuan Luo (NIA), Vani Pariyadath (NIDA), Ned Talley (Co-Chair, NINDS), Shumin Wang (Co-Chair, NIBIB), Cheri Wiggs (NEI), Andrea Wijtenburg (NIMH), George Zubal (NIBIB)*