FRIDAY, JUNE 25

10:00-11:00 am  NIH/FDA PRE-SESSION
Moderators: Nick Langhals, PhD, Kip A. Ludwig, PhD
NIH Program Management Perspectives on Translating Medical Devices
Kari Ashmont, PhD
Best Practices for FDA Pre-Submission Meetings
Megan Moynahan
Blueprint MedTech Program Launch
Michael B. Wolfson, PhD
SPARC Phase 2 Launch
Gene Civitello, PhD
Q&A Discussion
Kari Ashmont, PhD, Megan Moynahan, and Michael B. Wolfson, PhD

11:15 am-12:30 pm  PLENARY SESSION I
ENGAGING THE TARGET POPULATION
Moderator: Jennifer French
Lessons Learned in Patient Engagement from the Pharmaceutical Industry
Susan Schaeffer
Patient Engagement & the Science of Patient Input
Anita Bajaj, MD MPH
End-User Perspective of BCI Controlled Neuromuscular Electrical Stimulation
Ian Burkhart
BCI: Why I Did It, Why I Stayed, and Where We Are Now
Robert Chmielewski
Panel Discussion
Susan Schaeffer, Anita Bajaj, MD MPH, Shilpa Venkatachalam, PhD MPH, Ian Burkhart, and Robert Chmielewski

1:00-2:30 pm  PLENARY SESSION II
CLINICAL NEUROMODULATION: THE BARRIERS BEYOND ENGINEERING
Moderator: Ellen L. Air, MD PhD
Found in Translation: Computational Models for Neuromodulation Dose Selection
Warren M. Grill, PhD
Brains are Like Faces: Challenges of Optimal Targeting in STN DBS for Parkinson’s Disease
Parag G. Patil, MD PhD
Recovery is Not Linear: Next-Gen Strategies to Optimize DBS for Depression
Helen S. Mayberg, MD
Challenges of Expanding Neuromodulation Technologies to Developing Economies
Paresh K. Doshi, MS MCh
Q&A Discussion
Warren M. Grill, PhD, Parag G. Patil, MD PhD, Helen S. Mayberg, MD, and Paresh K. Doshi, MS MCh
FRIDAY, JUNE 25

2:45-4:00 pm PLENARY SESSION III
ADVANCED INTRACRANIAL ELECTROPHYSIOLOGY FOR STUDYING NEUROPSYCHIATRIC DISORDERS
Moderator: Alik S. Widge, MD PhD

DBS with Intracranial Stereo-EEG: Early Experience and Network Characterization
Kelly R. Bijanki, PhD

Closed Loop Approaches to Psychiatric DBS: From Diagnoses to Cognitive Domains
Alik S. Widge, MD PhD

Developing Next-Generation Neurotechnology for Closed-Loop Neuromodulation
Dejan Markovic, PhD

Q&A Discussion
Kelly R. Bijanki, PhD, Alik S. Widge, MD PhD, and Dejan Markovic, PhD

4:30-6:30 pm ABSTRACT SESSION

SATURDAY, JUNE 26

10:00-11:00 am PRE-SESSION

11:15 am-12:30 pm PLENARY SESSION IV
GLIAL-MEDIATED EFFECTS OF NEUROMODULATION
Moderator: Valentina Benfenati, PhD

Glial Interface: Devices and Approaches to Achieve Neuromodulation of the “Other Brain”
Valentina Benfenati, PhD

Understanding the Role of Glial, Vascular, and Neuronal Subtype Activity in Neuromodulation
Takashi Y. Kozai, PhD

Steering the Brain Network Away from Seizure Using Closed-Loop Electrical Stimulation
Sridevi V. Sarma, PhD

Imaging Analyses and Modulation of Astroglial Actin Microdomains by Chemophysical Approaches
Wolfgang Losert, PhD

Q&A Discussion
Valentina Benfenati, PhD, Takashi Y. Kozai, PhD, Wolfgang Losert, PhD, and Daniel Ehrens, PhD Candidate
### 1:15-2:45 pm  
**Concurrent Sessions**

#### Neural Interface Electrode Technologies  
*Moderator: Matt R. Angle, PhD*

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<tr>
<th>Title</th>
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<tr>
<td>Robustness and Neuronal Yield of Carbon Fiber Electrodes</td>
<td>Cynthia A. Chestek, PhD</td>
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<td>Extracting Behavioral Representations in Thousand Neuron Recordings</td>
<td>Carsen Stringer, PhD</td>
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<td>Redesigning ECoG for Brain Machine Interface Applications</td>
<td>Vikash Gilja, PhD</td>
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<td>Novel Material Approaches for Neural Electrodes</td>
<td>Flavia Vitale, PhD</td>
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<td><strong>Q&amp;A Discussion</strong></td>
<td>Cynthia A. Chestek, PhD, Carsen Stringer, PhD, Vikash Gilja, PhD, and Flavia Vitale, PhD</td>
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#### Closed-Loop Neuromodulation: Opportunities and Limitations  
*Moderators: Lawrence Poree, MD PhD MPH; Juan G. Hincapie, PhD*

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<tr>
<td>Physiological Closed Loop Control in DBS</td>
<td>Michelle Case, PhD</td>
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<td>Engineering Physiological Closed Loop Control in Cochlear Implants and SCS</td>
<td>John L. Parker, PhD</td>
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<td>Physiological Closed Loop Control in Deep Brain and Spinal Cord Stimulation</td>
<td>Julie G. Pilitsis, MD PhD</td>
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<td>ECAP Controlled Closed-Loop Spinal Cord Stimulation: The Dawn of a New Era</td>
<td>Lawrence Poree, MD PhD MPH</td>
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<tr>
<td><strong>Q&amp;A Discussion</strong></td>
<td>Michelle Case, PhD, John L. Parker, PhD, Julie G. Pilitsis, MD PhD, and Lawrence Poree, MD PhD MPH</td>
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### SATURDAY, JUNE 26

**3:00-4:30 pm  CONCURRENT SESSIONS**

**SENSORIMOTOR NEUROPROSTHETICS: ARE WE READY FOR WIDESPREAD CLINICAL APPLICATION?**  
*Moderator: Hamid Charkhkar, PhD*

**Improving the Experience of Sensory Neuroprostheses Through Biomimetic Stimulation Encoders and At-Home Learning**  
*Emily L. Graczyk, PhD*

**Making Implantable Neural Interfaces Work: Today and Tomorrow**  
*Florian Solzbacher, PhD*

**Interference of Sensory Modalities in the Spinal Cord During Electrical Stimulation of the Sensory Afferents**  
*Marco Capogrosso, PhD*

**Assessing the Effects of Sensory Restoration on Motor Performance with Sensorimotor Neuroprosthetics**  
*Lee E. Fisher, PhD*

**Q&A Discussion**  
*Emily L. Graczyk, PhD, Florian Solzbacher, PhD, Lee E. Fisher, PhD, and Josep-Maria Balaguer, MS*

**BIOELECTRONIC MEDICINE: NEW FRONTIERS IN VAGUS NERVE STIMULATION AND ULTRASOUND THERAPY**  
*Moderators: Stavros Zanos, MD PhD; Chris Puleo, PhD*

**Chronic Vagus Nerve Stimulation Accelerates Learning Through Cholinergic-Mediated Reinforcement Learning**  
*Cristin Welle, PhD*

**Engineering Design of Autonomic Nerve Stimulation Using Computational Models**  
*Nicole A. Pelot, PhD*

**Targeting Reflex Circuits in Immunity**  
*Sangeeta S. Chavan, PhD*

**Ultrasound Stimulation of the Spleen for Treating Inflammatory Disorders**  
*Hubert H. Lim, PhD*

**Q&A Discussion**  
*Cristin Welle, PhD, Nicole A. Pelot, PhD, Sangeeta S. Chavan, PhD, and Hubert H. Lim, PhD*

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**4:45-6:45 pm  ABSTRACT SESSION**

*Faculty and presentations subject to change.*