**MONDAY, August 21, 2006**

7:30 – 8:00 a.m.  
Registration/Continental Breakfast  
Poster/Display area open  

8:00 – 8:05 a.m.  
**Introduction and Goals**  
Dr. Joseph Pancrazio, National Institute of Neurological Disorders and Stroke (NINDS)  

8:05 – 8:10 a.m.  
**Welcome**  
Dr. Story Landis, Director, NINDS  

8:10 – 8:15 a.m.  
**Plenary Session 1: Neural Function in Parkinson’s Disease: Implications for Deep Brain Stimulation**  
Moderator: Dr. Eugene Oliver, NINDS  

8:15 – 8:40 a.m.  
**Mechanism of Deep Brain Stimulation**  
Dr. Joel Perlmutter, Washington University  

8:40 – 9:05 a.m.  
**Cellular Mechanisms Underlying the Therapeutic Benefit of High-Frequency Stimulation of the Subthalamic Nucleus**  
Dr. Mark Bevan, Northwestern University  

9:05 – 9:30 a.m.  
**Computational Analysis of Deep Brain Stimulation for Parkinson’s Disease**  
*Dr. Cameron McIntyre, Cleveland Clinic Foundation*  

9:30 – 9:50 a.m.  
**Discussion**  

9:50 – 10:10 a.m.  
**Break**  

10:10 – 10:40 a.m.  
**The Patient Perspective on Deep Brain Stimulation**  
Moderator: Dr. Jeffrey Wertheimer, Brooks Rehabilitation Center  
Panelists: Dr. David Heydrick, Parkinson’s Action Network  
Ms. Margaret Tuchman, The Parkinson Alliance  

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Monday, August 21, 2006 (continued)

10:45 – 11:35 a.m.  Panel Discussion: Optimizing Deep Brain Stimulation Implantation and Targeting  
Moderator: Dr. Warren Grill, Duke University  
Panelists: Dr. Jean Saint-Cyr, Toronto Western Research Institute  
* Dr. Peter Konrad, Vanderbilt University  
Dr. Jens Volkmann, Christian-Albrechts University

11:35 a.m. – 12:00 noon  Platform Presentations (Four Presentations)  
Facilitator: Dr. Joseph Pancrazio, NINDS  
* Todd Whitehurst, Advanced Bionics Corporation  
Stephen Wong, University of Pennsylvania  
Nathalia Peixoto, George Mason University  
Richard Murrow, University of North Carolina

12:00 – 1:00 p.m.  Lunch

1:00 – 2:00 p.m.  Poster Session

2:00 – 2:05 p.m.  Plenary Session 2: New Applications for Deep Brain Stimulation  
Moderator: Dr. Joseph Pancrazio, NINDS

2:05 – 2:30 p.m.  Modulating Putative Depression Circuits using DBS  
*Dr. Helen Mayberg, Emory University

2:30 – 2:55 p.m.  Central Thalamic Stimulation for Treatment of Traumatic Brain Injuries  
*Dr. Nicholas Schiff, Cornell University

2:55 – 3:20 p.m.  Deep Brain Stimulation for Tourette’s Disorder  
Dr. Roger Kurlan, University of Rochester

3:20 – 3:40 p.m.  Discussion

3:40 – 4:00 p.m.  Break

4:00 – 4:25 p.m.  Special Report: Open Architectures for Neural Interfaces  
Moderator: Dr. Roger Miller, National Institute on Deafness and Other Communication Disorders (NIDCD)  
Open Architecture Research Interface for Cochlear Implants  
Dr. Philip Loizou, University of Texas at Dallas

4:25 – 4:30 p.m.  Plenary Session 3: Tissue/Device Interface  
Moderator: Dr. Joseph Pancrazio, NINDS

4:30 – 4:55 p.m.  Histological Characterization of Brain Tissue after Deep Brain Stimulation  
Dr. William Shain, Wadsworth Center

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Monday, August 21, 2006 (continued)

4:55 – 5:20 p.m. Central Nervous System Response to Implanted Materials
Dr. Patrick Tresco, University of Utah

5:20 – 5:35 p.m. Discussion

5:45 – 6:30 p.m. Posters Available for Viewing

Tuesday, August 22, 2006

7:30 – 8:00 a.m. Registration/Continental Breakfast
Poster/Display area open

8:00 – 8:05 a.m. Introduction and Goals
Dr. Joseph Pancrazio, NINDS

8:05 – 8:15 a.m. User Perspective Talk
Jennifer French, Neurotech Network

8:15 – 8:20 a.m. Plenary Session 4: Progress in Functional Neuromuscular Stimulation
Moderator: Dr. Nancy Shinowara, National Institute of Child Health and Human Development (NICHD)

8:20 – 8:55 a.m. Cortical Control of an Upper Extremity Functional Neuromuscular Stimulation
Dr. Robert Kirsch, Case Western Reserve University

8:55 – 9:20 a.m. BIONic Neuromuscular Interfaces
*Dr. Gerald Loeb, University of Southern California

9:20 – 9:35 a.m. Discussion

9:35 – 10:00 a.m. Special Report: BrainGate Trial Update: Spinal Cord Injury, Stroke and ALS
*Dr. John Donoghue, Cyberkinetics Inc. and Brown University
*Dr. Leigh Hochberg, Brown University and Harvard Medical University

10:00 – 10:15 a.m. Break

10:15 – 11:30 a.m. Panel Discussion: Functional Neuromuscular Stimulation Approaches to Standing and Walking
Moderator: Dr. Naomi Kleitman, NINDS
Panelists: Dr. Patrick Jacobs, Florida International University
Dr. Ronald Triolo, Case Western Reserve University
* Dr. Richard Normann, University of Utah
Dr. Vivian Mushahwar, University of Alberta

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**Tuesday, August 22, 2006 (continued)**

11:35 a.m. – 12:00 noon  **Platform Presentations (Four Presentations)**
Facilitator: Dr. Joseph Pancrazio, NINDS
Paul Yoo, Duke University
John Pezaris, Harvard Medical School
Ken Gall, Georgia Institute of Technology
Lee Miller, Northwestern University School of Medicine

12:00 – 1:00 p.m.  **Lunch (on your own)**

1:00 – 2:00 p.m.  **Poster Session**

2:00 – 2:05 p.m.  **Plenary Session 5: Progress in Electrode Technologies**
Moderator: Dr. Grace Peng, National Institute of Biomedical Imaging and Bioengineering (NIBIB)

2:05 – 2:30 p.m.  **Smart MEMS Recording Systems**
Dr. Richard Andersen, California Institute of Technology

2:30 – 2:55 p.m.  **Selective Interface with the Nervous System**
Dr. Dominique Durand, Case Western Reserve University

2:55 – 3:20 p.m.  **National Center for Neural Communication Technology: Developing Advanced Microscale Devices for Chronic Neural Interfaces**
Dr. Daryl Kipke, University of Michigan

3:20 – 3:35 p.m.  Discussion

3:35 – 3:40 p.m.  **Plenary Session 6: Tactile and Proprioceptive Feedback**
Moderator: Dr. Joseph Pancrazio, NINDS

3:40 – 4:05 p.m.  **Somatosensory Neuroprosthesis**
Dr. John Chapin, SUNY Brooklyn

4:05 – 4:30 p.m.  **Microelectrode Arrays in Dorsal Root Ganglia to Sense Position and Provide Feedback for FES**
*Dr. Richard Stein, University of Alberta*

4:30 – 4:45 p.m.  Discussion

4:45 – 5:00 p.m.  **Break**

5:00 – 5:45 p.m.  **Breakout Session I – Research Support of Neural Engineering**
Panelists: Dr. Danielle Kerkovich, U.S. Department of Veterans Affairs
Dr. Kenneth Curley, Technology Research Center
Mr. Mark Donahey, Science and Technology Associates, Inc.
Dr. Semahat Demir, National Science Foundation

**Breakout Session II – Training and Fellowship Opportunities**
Dr. Stephen Korn, NINDS

5:45 – 6:30 p.m.  Posters Available for Viewing

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**Wednesday, August 23, 2006**

7:30 – 8:00 a.m.  
**Registration**  
Poster/Display area open

8:00 – 8:05 a.m.  
**Plenary Session 7: Advances in Cochlear Prostheses**  
Moderator: Dr. Roger Miller, NIDCD

8:05 – 8:30 a.m.  
**Effects of Remaining Hair Cells on Cochlear Implant Function**  
Dr. Paul Abbas, University of Iowa

8:30 – 8:55 a.m.  
**Hearing Restoration by Direct Auditory Nerve Stimulation**  
Dr. John Middlebrooks, University of Michigan

8:55 – 9:20 a.m.  
**Neurophysiological Indications of Channel Interaction During Cochlear Prosthesis Stimulation**  
Dr. Ben Bonham, University of California at San Francisco

9:20 – 9:45 a.m.  
**A Central Auditory Prostheses Based on Silicon Substrate Microprobes**  
Dr. Douglas McCreery, Huntington Medical Research Institutes

9:45 – 10:00 a.m.  
Discussion

10:00 – 10:15 a.m.  
**Break**

10:15 – 10:20 a.m.  
**Special Report: Molecular Neural Interfaces**  
Dr. Joseph Pancrazio, NINDS

10:20 – 10:50 a.m.  
**Optics-Based High-Speed Neural Interfaces**  
Dr. Karl Deisseroth, Stanford University

10:50 – 11:20 a.m.  
**Plenary Session 8: Therapeutic and Regenerative Effects of Stimulation**  
Moderator: Dr. Daofen Chen, NINDS

10:55 – 11:20 a.m.  
**Auditory Nerve Rescue in the Deafened Cochlea: New Strategies for Cochlear Implantation**  
Dr. Robert Shepherd, University of Melbourne

11:20 – 11:45 a.m.  
**Modulating Brain Activity to Facilitate Stroke Recovery**  
Dr. Gottfried Schlaug, Harvard University

11:45 – 12:10 p.m.  
**Long-Term Re-organization of Motor Cortical Output Induced by an Electronic Neural Implant**  
Dr. Andrew Jackson, University of Washington

12:10 – 12:25 p.m.  
Discussion

12:25 p.m.  
Meeting Adjourns and Poster Removal