

## Scientific Program

Friday, January 20, 2017

<b>7-8 am</b>	<b>Breakfast</b>
<b>7-8 am</b>	<b>Thematic Abstract Sessions</b>
	<b>CRPS and Other Challenging SCS Cases</b> <i>Moderator: William S. Rosenberg, MD</i>
<b>7-7:05 am</b>	<b>Welcome</b> <i>William S. Rosenberg, MD</i>
<b>7:05-7:15 am</b>	<b>First Two Cases of Dorsal Root Ganglion Stimulation for Complex Regional Pain Syndrome in NJ</b> <i>Amanda M. Carpenter, MD</i>
<b>7:15-7:25 am</b>	<b>Treatment of Complex Regional Pain Syndrome with High Frequency SCS (HF-SCS) at 10kHz: a Case Series</b> <i>Kasra Amirdelfan, MD</i>
<b>7:25-7:35 am</b>	<b>High-Frequency Spinal Cord Stimulation (HF10 SCS) for Coccydynia. Report of Two Cases</b> <i>Girish Vajramani, FRCS, FRCS</i>
<b>7:35-7:45 am</b>	<b>Spinal Cord Stimulation for Central Post Stroke Pain with an Associated Reduction in Spasticity</b> <i>Kanthurby Tambirajoo, FRCSI, MB, BCh, BAO</i>
<b>7:45-7:55 am</b>	<b>Three Cases of High-Frequency Spinal Cord Stimulation for Painful Lower Extremity Neuropathy of Varied Etiologies</b> <i>C. Brad Sisson, MD</i>
<b>7:55-8 am</b>	<b>Closing Discussion</b> <i>William S. Rosenberg, MD</i>
	<b>Nerve Root &amp; DRG Stimulation</b> <i>Moderator: Ramana Naidu, MD</i>
<b>7-7:05 am</b>	<b>Welcome</b> <i>Ramana Naidu, MD</i>
<b>7:05-7:15 am</b>	<b>Dorsal Root Ganglion Stimulation Amplifies T-Junction Filtering in Primary Sensory Neurons</b> <i>Alexander R. Kent, PhD</i>
<b>7:15-7:25 am</b>	<b>Dorsal Root Ganglion Stimulation to Treat Diabetic Neuropathy After Therapeutic Failure of Traditional SCS and Ziconotide</b> <i>Marc D. Yelle, MD, PhD</i>
<b>7:25-7:35 am</b>	<b>Can Dorsal Root Ganglion Stimulation for Pain Relief Modulate Sympathetic Efferent Nerve Traffic?</b> <i>Yrsa B. Sverrisdóttir, PhD</i>
<b>7:35-7:45 am</b>	<b>Relationship Between Pain Relief and Secondary Outcomes: an ACCURATE Sub-Analysis</b> <i>Nagy Mekhail, MD, PhD</i>
<b>7:45-7:55 am</b>	<b>Paresthesia Versus Paresthesia-Free Dorsal Root Ganglion Stimulation: an ACCURATE Sub-Analysis</b> <i>Timothy R. Deer, MD</i>
<b>7:55-8 am</b>	<b>Closing Discussion</b> <i>Ramana Naidu, MD</i>
	<b>Novel Waveforms and Energy Delivery in SCS</b> <i>Moderator: Konstantin V. Slavin, MD</i>
<b>7-7:05 am</b>	<b>Welcome</b> <i>Konstantin V. Slavin, MD</i>
<b>7:05-7:15 am</b>	<b>High Frequency 10 kHz Spinal Cord Stimulation Used to Treat Refractory, Chronic Pancreatitis Pain</b> <i>Keeley Dohmeier, MD</i>
<b>7:15-7:25 am</b>	<b>HF10 Salvage Using In Situ Electrodes from Traditional Paresthesia-Based Manufactures: a Case Series</b> <i>Christopher R. Abrecht, MD</i>
<b>7:25-7:35 am</b>	<b>Comparison of Tonic Versus Burst Spinal Cord Stimulation During Trial: a Multicenter Italian Study</b> <i>Laura Demartini, MD</i>
<b>7:35-7:45 am</b>	<b>SCS 10kHz and 1.2kHz Comparison Concerning Clinical Outcomes and Charge Burden</b> <i>Athanasios Koulousakis, MD</i>
<b>7:45-7:55 am</b>	<b>Programming Optimization Strategies for Burst may Improve Outcomes</b> <i>Steven M. Falowski, MD</i>
<b>7:55-8 am</b>	<b>Closing Discussion</b> <i>Konstantin V. Slavin, MD</i>

Visceral and Autonomic Neuromodulation	
<i>Moderator: Lawrence P. Schramm, PhD</i>	
<b>7-7:05 am</b>	<b>Welcome</b> <i>Lawrence P. Schramm, PhD</i>
<b>7:05-7:15 am</b>	<b>Effects of Sacral Nerve Stimulation on Gastric and Intestinal Motility: a Possible Spinal-Afferent Vagal-Efferent Pathway</b> <i>Shengai Zhang</i>
<b>7:15-7:25 am</b>	<b>Blood Pressure Modulation in Anesthetized Sheep with Intrathecal Bupivacaine: a Feasibility Study</b> <i>Salim M. Hayek, MD, PhD</i>
<b>7:25-7:35 am</b>	<b>Effects of Noninvasive Vagus Nerve Stimulation on Autonomic Output and Brain Following Heat Pain Stimuli</b> <i>Immanuel R. Lerman, MD, MS</i>
<b>7:35-7:45 am</b>	<b>Crohn's Disease Abdominal Pain Treatment Utilizing Wireless Spinal Cord Stimulators</b> <i>Sunil J. Panchal, MD</i>
<b>7:45-7:55 am</b>	<b>Intrathecal Baclofen Inhibits Pain Responses Evoked by Bladder Distention in a Rat Interstitial Cystitis Model</b> <i>Keith R. Hildebrand, DVM, PhD</i>
<b>7:55-8 am</b>	<b>Closing Discussion</b> <i>Lawrence P. Schramm, PhD</i>
Peripheral Neuropathy and Nerve Stimulation	
<i>Moderator: Jason E. Pope, MD, DABPM, FIPP</i>	
<b>7-7:05 am</b>	<b>Welcome</b> <i>Jason E. Pope, MD, DABPM, FIPP</i>
<b>7:05-7:15 am</b>	<b>The Novel Implantable Peripheral Nerve Stimulator for Post-Stroke Shoulder Pain</b> <i>W. Porter McRoberts, MD</i>
<b>7:15-7:25 am</b>	<b>High-Frequency Spinal Cord Stimulation(HF-SCS) for the Treatment of Chronic Intractable Pain from Peripheral Polyneuropathy</b> <i>Vincent Galan, MD, MBA</i>
<b>7:25-7:35 am</b>	<b>Sacral Lateral Branch Nerve Stimulation for Refractory Sacroiliac Joint Pain</b> <i>Janice E. Gellis, MD</i>
<b>7:35-7:45 am</b>	<b>Wireless Stimulation for the Treatment of Knee Surgery Chronic Pain: Case Study</b> <i>Frank DeLoos, MD</i>
<b>7:45-7:55 am</b>	<b>Modulating the Nervous System Using Charge Balanced Polarization Current (CBPC) Nerve Block</b> <i>Tina Vrabc, PhD</i>
<b>7:55-8 am</b>	<b>Closing Discussion</b> <i>Jason E. Pope, MD, DABPM, FIPP</i>
<b>8-10 am</b>	<b>Plenary Session I</b> <i>Moderators: Parag G. Patil, MD, PhD; Lawrence Poree, MD, PhD</i>
<b>8-8:05 am</b>	<b>Welcome &amp; Overview</b> <i>Parag G. Patil, MD, PhD; Lawrence Poree, MD, PhD</i>
<b>8:05-8:20 am</b>	<b>Pain 2025</b> <i>Joshua P. Prager, MD, MS</i>
<b>8:20-8:40 am</b>	<b>Opioids - What Now?</b> <i>Daniel Carr, MD</i>
<b>8:40-9 am</b>	<b>Neuromodulation at the Frontline, Homefront and Beyond. Lessons from Military Neuromodulation, Retired Colonel</b> <i>Karl E. Friedl, PhD</i>
<b>9-9:20 am</b>	<b>Groundbreaking Clinical Study I: The First-in-Class Neuromodulation Therapy for Rheumatoid Arthritis</b> <i>Yaakov Levine, PhD</i>
<b>9:20-9:40 am</b>	<b>Groundbreaking Clinical Study II: A Multi-Center, Prospective, Clinical Trial of the High Frequency Spinal Cord Stimulation (HF-SCS) at 10 kHz in the Treatment of Chronic Upper Limb and Neck Pain</b> <i>Kasra Amirdelfan, MD</i>
<b>9:40-10 am</b>	<b>NIH Roadmap for Pain</b> <i>Michael L. Oshinsky, PhD</i>
<b>10-10:30 am</b>	<b>Break with Exhibitors</b>

<b>10:30 am-12 pm</b>	<b>Plenary Session II</b> <i>Moderators: Peter Konrad, MD, PhD; Julie G. Pilitsis, MD, PhD</i>
<b>10:30-10:35 am</b>	<b>Welcome</b> <i>Peter Konrad, MD, PhD; Julie G. Pilitsis, MD, PhD</i>
<b>10:35-10:55 am</b>	<b>The Science of Closed-Loop DBS</b> <i>Jerrold L. Vitek, MD, PhD</i>
<b>10:55-11:15 am</b>	<b>Functional Brain Imaging of Pain and Thought. Balancing Opportunities and Potential Pitfalls. Road Map for the Future</b> <i>Karen D. Davis, PhD</i>
<b>11:15-11:35 am</b>	<b>Neuromodulation of the Autonomic Nervous System - Biological Basis for Success</b> <i>Lawrence P. Schramm, PhD</i>
<b>11:35-11:55 am</b>	<b>Understanding Access and Barriers to Neuromodulation Therapies: Patients and Providers</b> <i>Julie G. Pilitsis, MD, PhD</i>
<b>11:55 am-12 pm</b>	<b>Closing</b> <i>Peter Konrad, MD, PhD; Julie G. Pilitsis, MD, PhD</i>
<b>12-1:30 pm</b>	<b>Lunch Symposia</b>
	<b>Simplicity + Versatility = Intelligent Stimulation</b> <i>This non-CME activity is supported by Medtronic</i>
	<b>BURSTDR™ Stimulation and DRG Therapy: Selecting The Right Therapy For Optimal Patient Outcomes</b> <i>This non-CME activity is supported by St. Jude Medical</i>
<b>1:30-3 pm</b>	<b>Concurrent Sessions I</b>
	<b>Afferent Stimulation and Modulation of The Autonomic Nervous System</b> <i>Moderators: Jeffrey L. Ardell, PhD; Robert Foreman, PhD</i>
<b>1:30-1:35 pm</b>	<b>Welcome</b> <i>Jeffrey L. Ardell, PhD; Robert Foreman, PhD</i>
<b>1:35-1:55 pm</b>	<b>Baroreceptor Stimulation for Resistant Hypertension</b> <i>John P. Gassler, MD, FACC</i>
<b>1:55-2:15 pm</b>	<b>Neural Tourniquet with Vagal Nerve Stimulation</b> <i>Jared M. Huston, MD</i>
<b>2:15-2:35 pm</b>	<b>Sensory Neurons that Detect Stretch and Nutrients in the Digestive System</b> <i>Stephen Liberles, PhD</i>
<b>2:35-2:55 pm</b>	<b>Myocardial Infarction Disrupts Networked Cardiac Control: Opportunities for Bioelectric Medicine</b> <i>Jeffrey L. Ardell, PhD</i>
<b>2:55-3 pm</b>	<b>Closing Discussion</b> <i>Jeffrey L. Ardell, PhD; Robert Foreman, PhD</i>
	<b>Scientific and Clinical Advances in Intrathecal Therapy I</b> <i>Moderators: Michael Saulino, MD, PhD; Tony L. Yaksh, PhD</i>
<b>1:30-1:35 pm</b>	<b>Welcome</b> <i>Michael Saulino, MD, PhD; Tony L. Yaksh, PhD</i>
<b>1:35-2 pm</b>	<b>New Chemical Entities and Targets for Spinally Delivered Drugs: What's on the Horizon</b> <i>James Campbell, MD</i>
<b>2-2:25 pm</b>	<b>Intrathecal Bolus vs. Infusion: What Are the Principles Involved</b> <i>Andreas Linninger, PhD</i>
<b>2:25-2:50 pm</b>	<b>Where Do We Stand with the Granuloma</b> <i>Tony L. Yaksh, PhD</i>
<b>2:50-3 pm</b>	<b>Closing Discussion</b> <i>Michael Saulino, MD, PhD; Tony L. Yaksh, PhD</i>
	<b>2017 Current Status of Opioid Pain Management (Joint Session with AAPM)</b> <i>Moderators: Daniel Carr, MD; Joshua P. Prager, MD, MS</i>
<b>1:30-1:35 pm</b>	<b>Welcome</b> <i>Daniel Carr, MD; Joshua P. Prager, MD, MS</i>
<b>1:35-1:55 pm</b>	<b>Opioids - What's Next?</b> <i>Daniel Carr, MD</i>
<b>1:55-2:15 pm</b>	<b>Safe and Effective Opioid Prescribing in 2017: an Overview</b> <i>Larry C. Driver, MD</i>
<b>2:15-2:35 pm</b>	<b>Therapeutic Strategies to Address the Opioid Issue - IT Therapy and Alternatives</b> <i>Joshua P. Prager, MD, MS</i>
<b>2:35-2:45 pm</b>	<b>Oral Abstract: Intrathecal Pumps to Control Pain in Patients with Intractable Side Effects from Systemic Opioids</b> <i>Daniel R. Kloster, MD</i>
<b>2:45-2:55 pm</b>	<b>Oral Abstract: Association of Opioid Usage with Spinal Cord Stimulation Outcomes</b> <i>Ashwini D. Sharan, MD</i>
<b>2:55-3 pm</b>	<b>Closing Discussion</b> <i>Daniel Carr, MD; Joshua P. Prager, MD, MS</i>

Resident & Fellows Concurrent Session I: Introduction: The First Year Out <i>Moderators: Michael A. Fishman, MD MBA; Nidal El Baridi, MD</i>	
1:30-1:35 pm	<b>Welcome</b> <i>Michael A. Fishman, MD MBA; Nidal El Baridi, MD</i>
1:35-1:55 pm	<b>Integrating Neuromodulation into Your Practice</b> <i>Steven M. Falowski, MD</i>
1:55-2:15 pm	<b>Practice Management: Introduction to Revenue Streams</b> <i>Jason E. Pope, MD, DABPM, FIPP</i>
2:15-2:35 pm	<b>Practice Management: Strategies for Building and Marketing a Neuromodulation Practice</b> <i>David A. Provenzano, MD</i>
2:35-2:55 pm	<b>Contract Negotiation</b> <i>Morris Callaman</i>
2:55-3 pm	<b>Closing Discussion</b> <i>Michael A. Fishman, MD MBA; Nidal El Baridi, MD</i>
NIC I: Advances in Deep Brain Stimulation <i>Moderators: Peter Konrad, MD, PhD; Casey H. Halpern, MD</i>	
1:30-1:35 pm	<b>Welcome</b> <i>Peter Konrad, MD, PhD; Casey H. Halpern, MD</i>
1:35-1:55 pm	<b>The State of Clinical Closed-Loop DBS</b> <i>Kelly D. Foote, MD</i>
1:55-2:15 pm	<b>DBS for Depression - What's the Future?</b> <i>Clement Hamani, MD, PhD</i>
2:15-2:35 pm	<b>Using Stimulation Modeling to Improve DBS Efficiency and Efficacy</b> <i>Warren Grill, PhD</i>
2:35-2:45 pm	<b>Oral Abstract: Deep Brain Stimulation in Early Stage Parkinson's Disease: Stimulation and Medication Use Through Five Years</b> <i>Mallory L. Hacker, PhD</i>
2:45-2:55 pm	<b>Oral Abstract: Long Term Recharging Behavior and Therapy Settings in Patients Implanted with Rechargeable Deep Brain Stimulation Systems</b> <i>Peter Konrad, MD, PhD</i>
2:55-3 pm	<b>Closing Discussion</b> <i>Peter Konrad, MD, PhD; Casey H. Halpern, MD</i>
3-3:30 pm	<b>Break with Exhibitors</b>
3:30-5 pm Concurrent Sessions II	
Autonomic Efferent Targets for Therapeutic Control of Visceral Function <i>Moderators: Lawrence P. Schramm, PhD; Jiande Chen, PhD</i>	
3:30-3:35 pm	<b>Welcome</b> <i>Lawrence P. Schramm, PhD; Jiande Chen, PhD</i>
3:35-3:55 pm	<b>Chronic Cyclic Vagus Nerve Stimulation Improves Survival in Hypertensive Rats</b> <i>Alena Talkachova, PhD</i>
3:55-4:15 pm	<b>Vagal Nerve Stimulation for Control of Metabolism</b> <i>Jiande Chen, PhD</i>
4:15-4:35 pm	<b>Bioelectric Block of the Paravertebral Chain Stabilizes Ventricular Electrical Function</b> <i>Tina Vrabc, PhD</i>
4:35-4:55 pm	<b>Spinal Sympathoexcitatory and Sympathoinhibitory Mechanisms</b> <i>Lawrence P. Schramm, PhD</i>
4:55-5 pm	<b>Closing Discussion</b> <i>Lawrence P. Schramm, PhD; Jiande Chen, PhD</i>
Scientific and Clinical Advances in Intrathecal Therapy II <i>Moderators: Salim M. Hayek, MD, PhD; Padma Gulur, MD</i>	
3:30-3:35 pm	<b>Welcome</b> <i>Salim M. Hayek, MD, PhD; Padma Gulur, MD</i>
3:35-3:55 pm	<b>Novel Approaches in Targeted Drug Delivery in Cancer Pain</b> <i>Denis DD Dupouiron, MD</i>
3:55-4:15 pm	<b>Optimizing Targeted Intrathecal Drug Delivery in Cancer Pain</b> <i>Shane E. Brogan, MB, BCh</i>
4:15-4:35 pm	<b>PACC 2016: Trialing, Safety and Complications</b> <i>Jason E. Pope, MD, DABPM, FIPP</i>
4:35-4:45 pm	<b>Oral Abstract: Serum Opioid Levels Before and After Intrathecal Therapy for Refractory Cancer Pain</b> <i>Carina M. Jackman, MD</i>
4:45-4:55 pm	<b>Oral Abstract: Effectiveness and Safety of Intrathecal Ziconotide in Patients With Failed Back Surgery Syndrome</b> <i>Timothy R. Deer, MD</i>
4:55-5 pm	<b>Closing Discussion</b> <i>Salim M. Hayek, MD, PhD; Padma Gulur, MD</i>

<b>Safety, Appropriateness, Fiscal Neutrality, Effectiveness (SAFE) Evaluation of Back Pain</b> <i>Moderators: Elliot S. Krames, MD; B. Todd Sitzman, MD, MPH</i>	
<b>3:30-3:35 pm</b>	<b>Welcome</b> <i>Elliot S. Krames, MD; B. Todd Sitzman, MD, MPH</i>
<b>3:35-3:50 pm</b>	<b>Radiological Findings in Pain of Spinal Origin</b> <i>John A. Carrino, MD, MPH</i>
<b>3:50-4:05 pm</b>	<b>Safety, Appropriateness, Fiscal Neutrality, and Effectiveness of Spine Surgery</b> <i>Sigurd H. Berven, MD</i>
<b>4:05-4:20 pm</b>	<b>Safety, Appropriateness, Fiscal Neutrality, and Effectiveness of Non-Operative Pain Procedures to Treat Back Pain</b> <i>B. Todd Sitzman, MD, MPH</i>
<b>4:20-4:35 pm</b>	<b>Safety, Appropriateness, Fiscal Neutrality, and Effectiveness of Neurostimulation</b> <i>Elliot S. Krames, MD</i>
<b>4:35-4:50 pm</b>	<b>Safety, Appropriateness, Fiscal Neutrality, and Effectiveness of Intrathecal Therapy for Back Pain</b> <i>Eric J. Grigsby, MD, MBA; Jacqueline S. Weisbein, DO</i>
<b>4:50-5 pm</b>	<b>Panel Discussion</b> <i>All Faculty</i>
<b>Resident &amp; Fellows Concurrent Session II</b> <i>Moderators: Michael A. Fishman, MD MBA; Nidal El Baridi, MD</i>	
<b>3:30-3:35 pm</b>	<b>Welcome</b> <i>Michael A. Fishman, MD MBA; Nidal El Baridi, MD</i>
<b>3:35-3:55 pm</b>	<b>Advocacy: Legislative Issues in Neuromodulation</b> <i>Mehul J. Desai, MD; Michael S. Leong, MD</i>
<b>3:55-4:15 pm</b>	<b>Mentorship Program, RFS Committee</b> <i>Nidal El Baridi, MD; Dipan Patel, MD; Samuel R. Grodofsky, MD</i>
<b>4:15-4:35 pm</b>	<b>Panel Discussion</b> <i>All Faculty</i>
<b>4:35-4:55 pm</b>	<b>RFS Committee Elections</b> <i>Nidal El Baridi, MD; Dipan Patel, MD</i>
<b>4:55-5 pm</b>	<b>Closing Discussion</b> <i>Michael A. Fishman, MD MBA; Nidal El Baridi, MD</i>
<b>NIC II: Cranial Electrical Modeling and Imaging in Neuromodulation</b> <i>Moderators: Julie G. Pilitsis, MD, PhD; Sridevi Sarma, PhD</i>	
<b>3:30-3:35 pm</b>	<b>Welcome</b> <i>Julie G. Pilitsis, MD, PhD; Sridevi Sarma, PhD</i>
<b>3:35-3:55 pm</b>	<b>Electrical and Optical Modeling in the Brain</b> <i>Cameron McIntyre, PhD</i>
<b>3:55-4:15 pm</b>	<b>Modeling Neural Systems in Epilepsy</b> <i>Mark J. Cook, MBBS, MD</i>
<b>4:15-4:30 pm</b>	<b>Oral Abstract: Connectivity-Based Parcellation of ALIC: a Possible Tool for Neuromodulatory Targeting</b> <i>Pranav Nanda</i>
<b>4:30-4:45 pm</b>	<b>Oral Abstract: Image-Guided Deep Brain Stimulation: MRI-Tractography Shows Differences in Responders and Non-Responders</b> <i>Jonathan J. Rasouli, MD</i>
<b>4:45-5 pm</b>	<b>Oral Abstract: Feasibility of High Resolution Intraoperative LFP Recording with a Bipolar Microelectrode in Parkinson's Disease</b> <i>Ilknur Telkes, PhD Candidate</i>
<b>5-5:05 pm</b>	<b>Closing Discussion</b> <i>Julie G. Pilitsis, MD, PhD; Sridevi Sarma, PhD</i>
<b>5-6 pm</b>	<b>Residents and Fellows Job Fair</b>
<b>5-6 pm</b>	<b>Women in Neuromodulation</b>
<b>5-7 pm</b>	<b>Poster Session I</b> <i>This non-CME activity is supported by Nevro</i>

Saturday, January 21, 2017

<b>7-8 am</b>	<b>Breakfast Symposia</b>
<b>Evidence Based Management of Lumbar Spinal Stenosis</b> <i>This non-CME activity is supported by Vertiflex</i>	
<b>7-8 am</b>	<b>Thematic Abstract Sessions</b>
<b>SCS Complications &amp; Avoidance</b> <i>Moderator: Leonardo Kapural, MD, PhD</i>	
<b>7-7:05 am</b>	<b>Welcome</b> <i>Leonardo Kapural, MD, PhD</i>
<b>7:05-7:15 am</b>	<b>Spinal Cord Stimulation Infection Rate and Risk Factors: Results from a United States Payer Database</b> <i>Steven M. Falowski, MD</i>
<b>7:15-7:25 am</b>	<b>Drivers of Unplanned 30-Day Readmission Following Spinal Cord Stimulator Implantation</b> <i>Aladine A. Elsamadicy, BE</i>
<b>7:25-7:35 am</b>	<b>Spinal Cord Stimulator Complications in Complex Regional Pain Syndrome: a Review of 7-years of Data</b> <i>Michael Hanes, MD</i>
<b>7:35-7:45 am</b>	<b>Compliance with Guidelines for Preventing Surgical Site Infection During Permanent Implantation of Spinal Cord Stimulators</b> <i>James H. Jones, MD</i>
<b>7:45-7:55 am</b>	<b>Delayed Hypersensitivity Response to Tecothane During Lumbar Spinal Cord Stimulation Trial: an Unexpected Complication</b> <i>Rajesh K. Sharma, MD</i>
<b>7:55-8 am</b>	<b>Closing Discussion</b> <i>Leonardo Kapural, MD, PhD</i>
<b>Advances in IT Therapy</b> <i>Moderator: Salim M. Hayek, MD, PhD</i>	
<b>7-7:05 am</b>	<b>Welcome</b> <i>Salim M. Hayek, MD, PhD</i>
<b>7:05-7:15 am</b>	<b>Management of Pain Due to Nephrogenic Systemic Fibrosis via Implantation of an Intrathecal Pain Pump</b> <i>Mark Dziuba, MD</i>
<b>7:15-7:25 am</b>	<b>Investigation Into the Priming Bolus Behavior of the Medtronic SynchroMed II Implantable Infusion System</b> <i>Jeffrey Bodner, MSME, MSBME</i>
<b>7:25-7:35 am</b>	<b>Targeted Drug Delivery (TDD) Product and Outcomes Registry</b> <i>Linda Page, Pharm.D.</i>
<b>7:35-7:45 am</b>	<b>Proven Safety and Efficacy of an Outpatient Intrathecal Catheter Trialing Method for Targeted Drug Delivery</b> <i>Vipul Mangal, MD</i>
<b>7:45-7:55 am</b>	<b>Application of Diamond-Like Carbon Coating Inside an Implantable Medical Device for Enhanced Wear Resistance</b> <i>Alan Shi, PhD</i>
<b>7:55-8 am</b>	<b>Closing Discussion</b> <i>Salim M. Hayek, MD, PhD</i>
<b>SCS Basic Science and Mechanisms of Action</b> <i>Moderator: Robert Foreman, PhD</i>	
<b>7-7:05 am</b>	<b>Welcome</b> <i>Robert Foreman, PhD</i>
<b>7:05-7:15 am</b>	<b>Frequency Modulated Phase Coding for Cochlear Implants</b> <i>Reagan Roberts</i>
<b>7:15-7:25 am</b>	<b>Measurement of Evoked Compound Action Potentials During Burst and Tonic Spinal Cord Stimulation</b> <i>Alexander R. Kent, PhD</i>
<b>7:25-7:35 am</b>	<b>High-Frequency &amp; Burst SCS on Acute Spinal Neuronal Activity in a Rat Model of Painful Radiculopathy</b> <i>Alexander R. Kent, PhD</i>
<b>7:35-7:45 am</b>	<b>Biomarkers for Chronic Neuropathic Pain and Their Potential Application in Spinal Cord Stimulation: A Review</b> <i>Chibueze Nwagwu, BA</i>
<b>7:45-7:55 am</b>	<b>Functional Connectivity of the Brainstem Ascending Reticular Activating System in Epilepsy: Uncovering Potential Neuromodulation Targets</b> <i>Dario J. Englot, MD, PhD</i>
<b>7:55-8 am</b>	<b>Closing Discussion</b> <i>Robert Foreman, PhD</i>

Neuromodulation for SCI and Neural Injury	
<i>Moderator: Line Jacques, MD</i>	
<b>7-7:05 am</b>	<b>Welcome</b> <i>Line Jacques, MD</i>
<b>7:05-7:15 am</b>	<b>Acute and Sub-Chronic Modulation of Phantom Limb Pain Using Epidural Spinal Root Stimulation</b> <i>Ahmed Kashkoush, BS</i>
<b>7:15-7:25 am</b>	<b>Improved Spinal Cord Injury Patient Outcomes with 10kHz-High Frequency Spinal Cord Stimulation</b> <i>C. Brad Sisson, MD</i>
<b>7:25-7:35 am</b>	<b>Prospective Study on DRG Stimulation for the Management of Chronic Pain Following Peripheral Nerve Injury</b> <i>Anders Wahlstedt, MD</i>
<b>7:35-7:45 am</b>	<b>Case Report: Restoration of Neurologic Function after Trial High Frequency SCS in Spinal Cord Injury</b> <i>Michael H. Verdolin, MD</i>
<b>7:45-7:55 am</b>	<b>Retrograde Percutaneous Spinal Cord Stimulator Trial Lead Placement Due to Prior Spinal Cord Tumor Resection</b> <i>Omar Ali, MD</i>
<b>7:55-8 am</b>	<b>Closing Discussion</b> <i>Line Jacques, MD</i>
Advances in Neuromodulation Technology	
<i>Moderator: Ellen L. Air, MD, PhD</i>	
<b>7-7:05 am</b>	<b>Welcome</b> <i>Ellen L. Air, MD, PhD</i>
<b>7:05-7:15 am</b>	<b>Targeting Treatment of Motor Control Impairment in Chronic Low Back Pain-1 Year Results from the REACTIV8-Trial</b> <i>Sam S. Eldabe, MB, ChB, FRCA, FFPMRCA</i>
<b>7:15-7:25 am</b>	<b>Brain Neuromodulation for Treating Peripheral Inflammation</b> <i>Valentin A. Pavlov, PhD</i>
<b>7:25-7:35 am</b>	<b>Identifying Neuromodulation Targets for OCD Using Simultaneous EEG-fMRI</b> <i>Yagna J. Pathak, PhD</i>
<b>7:35-7:45 am</b>	<b>Development of a Vagus Nerve Stimulator for the Treatment of Inflammatory Diseases</b> <i>Richard D. Bucholz, MD</i>
<b>7:45-7:55 am</b>	<b>Improved Operative Efficiency Using a Real-Time MRI-Guided Stereotactic Platform for Laser Amygdalohippocampotomy</b> <i>Allen Ho, MD</i>
<b>7:55-8 am</b>	<b>Closing Discussion</b> <i>Ellen L. Air, MD, PhD</i>
<b>8-10 am</b>	<b>Plenary Session III</b> <i>Moderators: Parag G. Patil, MD, PhD; Lawrence Poree, MD, PhD</i>
<b>8-8:15 am</b>	<b>Welcome &amp; Overview</b> <i>Parag G. Patil, MD, PhD; Lawrence Poree, MD, PhD</i>
<b>8:15-8:35 am</b>	<b>Groundbreaking Basic Science: Electrophysiological Investigation of the Effects of 10-kHz Spinal Cord Stimulation on the Excitability of Superficial Dorsal Horn Neurons in Experimental Pain Models in the Rat</b> <i>Stephen B. McMahon, PhD</i>
<b>8:35-8:55 am</b>	<b>Kumar Award</b> <i>Scott F. Lempka, PhD</i>
<b>8:55-9:15 am</b>	<b>Neuroplasticity and Tolerance to Spinal Cord Stimulation: Occurrence, Mechanisms, and Potential Solutions</b> <i>Oscar A. deLeon-Casasola, MD</i>
<b>9:15-9:35 am</b>	<b>Incorporating Technological Advances in Stimulation Waveforms and Lead Technologies into Our Practice</b> <i>Parag G. Patil, MD, PhD</i>
<b>9:35-9:55 am</b>	<b>Transforming DBS</b> <i>Emad Eskandar, MD</i>
<b>9:55-10 am</b>	<b>Closing</b> <i>Parag G. Patil, MD, PhD; Lawrence Poree, MD, PhD</i>
<b>10-10:30 am</b>	<b>Break with Exhibitors</b>

<b>10:30 am-12 pm</b>	<b>Plenary Session IV</b> <i>Moderators: Ali R. Rezai, MD; Marc A. Huntoon, MD</i>
<b>10:30-10:35 am</b>	<b>Welcome</b> <i>Ali R. Rezai, MD; Marc A. Huntoon, MD</i>
<b>10:35-11:15 am</b>	<b>President's Address</b> <i>Ashwini D. Sharan, MD</i>
<b>11:15-11:55 am</b>	<b>Keynote Address</b> <i>Rosalind W. Picard, Sc.D., FIEEE</i>
<b>11:55 am-12 pm</b>	<b>Closing</b> <i>Ali R. Rezai, MD; Marc A. Huntoon, MD</i>
<b>12-1:30 pm</b>	<b>Lunch Symposia</b>
<b>Advancing Patient Outcomes: New Insights, Clinical Data, and Research Findings with HF10 Therapy</b> <i>This non-CME activity is supported by Nevro</i>	
<b>1:30-3 pm</b>	<b>Concurrent Sessions III</b>
<b>Peripheral Nerve and Root-Level Neuromodulation</b> <i>Moderators: Peter S. Staats, MD, MBA; Sam S. Eldabe, MB, ChB, FRCA, FFPMRCA</i>	
<b>1:30-1:35 pm</b>	<b>Welcome</b> <i>Peter S. Staats, MD, MBA; Sam S. Eldabe, MB, ChB, FRCA, FFPMRCA</i>
<b>1:35-1:50 pm</b>	<b>The Current State of Peripheral Nerve Stimulation</b> <i>Christopher A. Gilmore, MD</i>
<b>1:50-2:05 pm</b>	<b>Science and Indications for DRG</b> <i>Sam S. Eldabe, MB, ChB, FRCA, FFPMRCA</i>
<b>2:05-2:20 pm</b>	<b>Comparing Long-Term Tolerance of Spinal Cord Stimulation and Dorsal Root Ganglion Stimulation</b> <i>Peter S. Staats, MD, MBA</i>
<b>2:20-2:35 pm</b>	<b>Oral Abstract: Comparison of SCS and DRG Outcomes in Focal and Widespread Pain: an ACCURATE Sub-Study</b> <i>Lawrence Poree, MD, PhD</i>
<b>2:35-2:50 pm</b>	<b>Oral Abstract: Neuromonitoring for Confirmation of Lead Placement in Dorsal Root Ganglion Stimulation</b> <i>Steven M. Falowski, MD</i>
<b>2:50-3 pm</b>	<b>Closing Discussion</b> <i>Peter S. Staats, MD, MBA; Sam S. Eldabe, MB, ChB, FRCA, FFPMRCA</i>
<b>Cancer Pain in the Hot Seat: A Multidisciplinary Expert Panel Grappling with Real-Life Clinical Issues - (Joint with Cancer Pain Research Consortium)</b> <i>Moderators: William S. Rosenberg, MD</i>	
<b>1:30-1:35 pm</b>	<b>Welcome</b> <i>William S. Rosenberg, MD</i>
<b>1:35-2:50 pm</b>	<b>Panel Discussion of 5 Archetypal Cases, Presented Boards-Style:</b> <i>Kanu Sharan, MD Kristin J. Redmond, MD, MPH Sanjeet Narang, MD Brian M. Bruel, MD, MBA Ahmed Raslan, MD</i>
<b>2:50-3 pm</b>	<b>Closing Discussion</b> <i>William S. Rosenberg, MD</i>
<b>The Scientific Foundations of Neuromodulation</b> <i>Moderators: Yun Guan, MD, PhD; Line Jacques, MD</i>	
<b>1:30-1:35 pm</b>	<b>Welcome</b> <i>Yun Guan, MD, PhD; Line Jacques, MD</i>
<b>1:35-1:50 pm</b>	<b>Basic Science of SCS</b> <i>Yun Guan, MD, PhD</i>
<b>1:50-2:05 pm</b>	<b>Oral Abstract: Dorsal Root Ganglion Stimulation Suppresses Somatic Hyperactivity in Injured Primary Sensory Neurons</b> <i>Alexander R. Kent, PhD</i>
<b>2:05-2:20 pm</b>	<b>Current State of Closed Loop Spinal Cord Stimulation</b> <i>Robert M. Levy, MD, PhD</i>
<b>2:20-2:35 pm</b>	<b>Oral Abstract: Electrophysiological Insight into Dorsal Column Neuroanatomy and the Mechanism of Action of Spinal Cord Stimulation</b> <i>Marc A. Russo, MBBS, DA (UK), FANZCA, FFPMANZCA</i>
<b>2:35-2:50 pm</b>	<b>Oral Abstract: Spinal Cord Stimulation: Molecular View of Mechanism Through Genomics and Proteomics Using an Animal Model</b> <i>David L. Cedeno, PhD</i>
<b>2:50-3 pm</b>	<b>Closing Discussion</b> <i>Yun Guan, MD, PhD; Line Jacques, MD</i>



<b>Practical Issues in Pain Management: Healthcare Access Economics, Legislation and Provider and Patient Diversity (Joint with ASRA)</b> <i>Moderators: David A. Provenzano, MD; Oscar A. deLeon-Casasola, MD</i>	
1:30-1:35 pm	<b>Welcome</b> <i>David A. Provenzano, MD; Oscar A. deLeon-Casasola, MD</i>
1:35-1:55 pm	<b>Helping the Pain Practitioner Succeed in the New Environment: ASRA and The Multi-Society Response</b> <i>Oscar A. deLeon-Casasola, MD</i>
1:55-2:10 pm	<b>MACRA and What it Means to Practitioners</b> <i>David A. Provenzano, MD</i>
2:10-2:25 pm	<b>Developing an Adequate Reimbursement Structure to the CPT Process for New Technology in Pain Medicine</b> <i>Kevin E. Vorenkamp, MD</i>
2:25-2:40 pm	<b>Healthcare Reform 2017, Where Are We Headed Now?</b> <i>David Kloth, MD</i>
2:40-3 pm	<b>Panel Discussion</b> <i>All Faculty</i>
<b>NIC III: Brain-Machine Interface Neuroprosthetics</b> <i>Moderators: A. Bolu Ajiboye, PhD; Elizabeth Tyler-Kabara, MD</i>	
1:30-1:35 pm	<b>Welcome</b> <i>A. Bolu Ajiboye, PhD; Elizabeth Tyler-Kabara, MD</i>
1:35-1:55 pm	<b>Cortical Control of an FES System for Individuals with High Tetraplegia</b> <i>A. Bolu Ajiboye, PhD</i>
1:55-2:10 pm	<b>Oral Abstract: Restoring Cortical Control of Functional Movements in a Human with Quadriplegia</b> <i>Gaurav Sharma, PhD</i>
2:10-2:25 pm	<b>Oral Abstract: Preliminary Frequency Discrimination and Response Time Data from Direct Cortical Somatosensory Stimulation in a Human</b> <i>Daniel R. Kramer, MD</i>
2:25-2:40 pm	<b>Oral Abstract: Implantable Neuroprosthesis for Restoration of Blink Function</b> <i>Daniel McDonnell, PhD</i>
2:40-2:55 pm	<b>Oral Abstract: Evaluation of Reactive Accelerated Aging to Assess the Lifetime of Utah Electrode Arrays</b> <i>Ryan B. Caldwell, MS</i>
2:55-3 pm	<b>Closing Discussion</b> <i>A. Bolu Ajiboye, PhD; Elizabeth Tyler-Kabara, MD</i>
3-3:30 pm	<b>Break with Exhibitors</b>
3:30-5 pm	<b>Concurrent Sessions IV</b>
<b>Non-Pain Indications of Neuromodulation</b> <i>Moderators: Casey H. Halpern, MD; Kiran V. Patel, MD</i>	
3:30-3:35 pm	<b>Welcome</b> <i>Casey H. Halpern, MD; Kiran V. Patel, MD</i>
3:35-3:55 pm	<b>Hypoglossal Stimulation for OSA</b> <i>Kingman P. Strohl, MD</i>
3:55-4:15 pm	<b>Sensory Neuromodulation - Cochlear Implants</b> <i>Claus-Peter Richter, MD, PhD</i>
4:15-4:35 pm	<b>Neurostimulation for Epilepsy</b> <i>Peter Konrad, MD, PhD</i>
4:35-4:55 pm	<b>SAFE Analysis of Phrenic Nerve Stimulation for Ventilator Dependent Patients</b> <i>Samuel Cheshier, MD, PhD</i>
4:55-5 pm	<b>Closing Discussion</b> <i>Casey H. Halpern, MD; Kiran V. Patel, MD</i>
<b>Cranial Neuromodulation for Pain</b> <i>Moderators: Konstantin V. Slavin, MD; Sameer A. Sheth, MD, PhD</i>	
3:30-3:35 pm	<b>Welcome</b> <i>Konstantin V. Slavin, MD; Sameer A. Sheth, MD, PhD</i>
3:35-3:55 pm	<b>Cranial PNS for Pain</b> <i>Konstantin V. Slavin, MD</i>
3:55-4:15 pm	<b>DBS/MCS for Pain</b> <i>Andre G. Machado, MD, PhD</i>
4:15-4:35 pm	<b>Cranial Neuroablation for Pain</b> <i>Sameer A. Sheth, MD, PhD</i>
4:35-4:45 pm	<b>Oral Abstract: Effect Prediction of Occipital Nerve Stimulation in Cluster Headache, with Transcutaneous Electrical Nerve Stimulation (TENS) Preoperatively</b> <i>Jens Christian H. Sorensen, MD, PhD, DMSc</i>
4:45-4:55 pm	<b>Oral Abstract: Technical Aspects of SPG Stimulation for Cluster Headache: a New Frontier in Neuromodulation</b> <i>Jan Vesper, MD, PhD</i>
4:55-5 pm	<b>Closing Discussion</b> <i>Konstantin V. Slavin, MD; Sameer A. Sheth, MD, PhD</i>

<b>Novel Stimulation Patterns in SCS</b>	
<i>Moderators: Robert Foreman, PhD; Bengt G. Linderoth, MD, PhD</i>	
<b>3:30-3:35 pm</b>	<b>Welcome</b> <i>Robert Foreman, PhD; Bengt G. Linderoth, MD, PhD</i>
<b>3:35-3:50 pm</b>	<b>Novel Stimulation Algorithms and the Gate Control Concept</b> <i>Bengt G. Linderoth, MD, PhD</i>
<b>3:50-4:05 pm</b>	<b>Mechanisms of SCS Beyond Gate Control</b> <i>Robert Foreman, PhD</i>
<b>4:05-4:20 pm</b>	<b>HF10 and Traditional Stimulation</b> <i>B. Todd Sitzman, MD, MPH</i>
<b>4:20-4:35 pm</b>	<b>Burst Stimulation</b> <i>Ricardo Vallejo, MD, PhD</i>
<b>4:35-4:50 pm</b>	<b>Outcomes in 1 kHz Subperception Stimulation</b> <i>James M. North, MD</i>
<b>4:50-5 pm</b>	<b>Closing Discussion</b> <i>Robert Foreman, PhD; Bengt G. Linderoth, MD, PhD</i>
<b>Clinical Research for Clinicians</b>	
<i>Moderators: Robert M. Levy, MD, PhD; Sam S. Eldabe, MB, ChB, FRCA, FFPMRCA</i>	
<b>3:30-3:35 pm</b>	<b>Welcome</b> <i>Robert M. Levy, MD, PhD; Sam S. Eldabe, MB, ChB, FRCA, FFPMRCA</i>
<b>3:35-3:55 pm</b>	<b>Where Do I Begin</b> <i>Mariah Tackett</i>
<b>3:55-4:15 pm</b>	<b>Limits of Interpretation &amp; Analysis in Pain Research</b> <i>Nathaniel P. Katz, MD, MS</i>
<b>4:15-4:35 pm</b>	<b>Investigator Sponsored IDE</b> <i>Timothy Marjenin, BS</i>
<b>4:35-4:55 pm</b>	<b>Studies that Advance the Field - The Editor's Perspective</b> <i>Robert M. Levy, MD, PhD</i>
<b>4:55-5 pm</b>	<b>Closing Discussion</b> <i>Robert M. Levy, MD, PhD; Sam S. Eldabe, MB, ChB, FRCA, FFPMRCA</i>
<b>NIC IV: Technology of Neuromodulation</b>	
<i>Moderators: Joseph J. Pancrazio, PhD; Cynthia A. Chestek, PhD</i>	
<b>3:30-3:35 pm</b>	<b>Welcome</b> <i>Joseph J. Pancrazio, PhD; Cynthia A. Chestek, PhD</i>
<b>3:35-3:55 pm</b>	<b>Material Advances in the Development of Neural Interfaces</b> <i>Florian Solzbacher, PhD</i>
<b>3:55-4:15 pm</b>	<b>Problems and Solutions at the Neural Interface</b> <i>Dominique M. Durand, PhD</i>
<b>4:15-4:35 pm</b>	<b>Ultrasmall Carbon Fiber Electrode Arrays for High Density Neural Recording with Minimal Scarring</b> <i>Cynthia A. Chestek, PhD</i>
<b>4:35-4:55 pm</b>	<b>MRI Safety Issues for Neuromodulation Systems: Update 2017</b> <i>Frank G. Shellock, PhD, FACR, FISMRM, FACC</i>
<b>4:55-5 pm</b>	<b>Closing Discussion</b> <i>Joseph J. Pancrazio, PhD; Cynthia A. Chestek, PhD</i>
<b>5-7 pm</b>	<b>Poster Session II</b> <i>This non-CME activity is supported by Nevro</i>

Saturday, January 21, 2017

<b>7-8 am</b>	<b>Breakfast</b>
<b>8-9:15 am</b>	<b>Top Abstracts I</b> <i>Moderators: Lawrence Poree, MD, PhD; Jason E. Pope, MD, DABPM, FIPP</i>
<b>8-8:05 am</b>	<b>Welcome</b> <i>Lawrence Poree, MD, PhD; Jason E. Pope, MD, DABPM, FIPP</i>
<b>8:05-8:17 am</b>	<b>Spinal Cord Stimulation Infection Rate and Incremental Annual Expenditures: Results from a US Payer Database</b> <i>David A. Provenzano, MD</i>
<b>8:17-8:29 am</b>	<b>Examining Reasons for Spinal Cord Stimulation Explant: a Retrospective Chart Review of 18 US Centers</b> <i>Jason E. Pope, MD, DABPM, FIPP</i>
<b>8:29-8:41 am</b>	<b>International Spinal Cord Stimulation Effectiveness Study Reveals Longer-Term Outcomes of the Therapy in 950 Implants</b> <i>Jean-Pierre Van Buyten, MD</i>
<b>8:41-8:53 am</b>	<b>NAPS - Non-Awake versus Awake Placement of Spinal Cord Stimulators: Comparing Safety and Efficacy</b> <i>Steven M. Falowski, MD</i>
<b>8:53-9:05 am</b>	<b>The Predictive Value of Short-Term Spinal Cord Stimulation Trials in Determining Long-Term Pain Relief</b> <i>Ricardo Vallejo, MD, PhD</i>
<b>9:05-9:15 am</b>	<b>Closing Discussion</b> <i>Lawrence Poree, MD, PhD; Jason E. Pope, MD, DABPM, FIPP</i>
<b>9:15-9:30 am</b>	<b>Break with Exhibitors</b>
<b>9:30 am-10:45 am</b>	<b>Top Abstracts II</b> <i>Moderators: Lawrence Poree, MD, PhD; Jason E. Pope, MD, DABPM, FIPP</i>
<b>9:30-9:35 am</b>	<b>Welcome</b> <i>Lawrence Poree, MD, PhD; Jason E. Pope, MD, DABPM, FIPP</i>
<b>9:35-9:47 am</b>	<b>Burst or Tonic Stimulation? Results of a Placebo Controlled, Double Blinded, Randomized Study for the Treatment of FBSS Patients, with 3y Follow-Up</b> <i>Jan Vesper, MD, PhD</i>
<b>9:47-9:59 am</b>	<b>QST as a Biomarker for Phenotyping Patients Undergoing Spinal Cord Stimulation - a Clinical Investigation</b> <i>Vivek Mehta, MBBS, FRCA, MD, FFRMCA</i>
<b>9:59-10:11 am</b>	<b>Barriers to Referral for Spinal Cord Stimulator Implementation</b> <i>Ajay Antony, MD</i>
<b>10:11-10:23 am</b>	<b>Comparison of Pain Coverage and Excess Paresthesia Between SCS and DRG Stimulation: an ACCURATE Sub-study</b> <i>Robert M. Levy, MD, PhD</i>
<b>10:23-10:35 am</b>	<b>Randomized, Controlled Trial Assessing Burst Stimulation for Chronic Pain: Update of the SUNBURST Study</b> <i>Konstantin V. Slavin, MD</i>
<b>10:35-10:45 am</b>	<b>Closing Discussion</b> <i>Lawrence Poree, MD, PhD; Jason E. Pope, MD, DABPM, FIPP</i>
<b>10:45-11 am</b>	<b>Closing</b>

\*Agenda subject to change