2021 NANS VIRTUAL MEETING

Live Sessions • January 15-16 2021
Opening Reception in Exhibit Hall • January 14, 2021

All times listed in Central Standard Time (CST)
You must register in advance of the meeting dates to participate live or on-demand.
Friday, January 15

3:50-5:35 pm CST • Plenary Session I

Presidential Welcome • Peter Konrad, MD PhD

Late-Breaking Abstracts Introduction • Nebojsa Nick Knezevic, MD PhD

Results from an RCT Examining Use of tAN to Improve Symptoms Associated with Opioid Withdrawal • Carlos Tirado, MD MPH

Spinal Cord Stimulation at 10kHz for Non-Surgical Refractory Back Pain: Multicenter RCT Primary Endpoint Results • Leonardo Kapural, MD PhD

Effects of DTM SCS in Treating Intractable Chronic Low Back Pain: RCT Long-term Follow-Up Results • Michael A. Fishman, MD MBA

Effectiveness, Durability and Safety of Restorative Neurostimulation for Chronic Low Back Pain: Two Year Results • Christopher Gilligan, MD MBA

Sustained Benefits of 10kHz Spinal Cord Stimulation for Painful Diabetic Neuropathy-6-Month Randomized Controlled Trial Results • Erika A. Petersen, MD

Introduction of the NANS President • Ashwini D. Sharan, MD

Presidential Address • Peter Konrad, MD PhD

5:45-6:45 pm CST • Plenary Session II

Moderator • Julie G. Pilitsis, MD PhD

Robotics and Neuromodulation in Stroke: Proof of Concept • Dylan Edwards, PhD

iEEG-Guided Therapy Development: Proof of Concept in Depression • Sameer A. Sheth, MD PhD

Spinal Microstimulation to Restore Movement After Spinal Cord Injury • Vivian K. Mushahwar, PhD

7-8 pm CST • Research in Neuromodulation: Trials and Tribulations

Moderator • Anuj Bhatia, MD

2020 IMMPACT/ION/INS Recommendations for Randomized Controlled Trials of Spinal Cord Stimulation for Pain • Nathaniel P. Katz, MD MS

Generating and Using Big Data to Conduct, Augment and Extend Existing Research Designs • Anuj Bhatia, MD

Developing National and International Registries for Neuromodulation • Joohi Jimenez-Shahed, MD
7-8 pm CST • Outcomes and Access to Neuromodulation for Women and Underrepresented Minorities: A Call to Action
Moderator • Johnathan H. Goree, MD

Disparities in Neuromodulation Access and Outcomes: What Are the Facts? • Myrdalis Diaz-Ramirez, MD

Challenges to Access of Deep Brain Stimulation for Women and Minorities • David Charles, MD

How Do Bias and Cultural Differences Affect the Patient Experience? • Johnathan H. Goree, MD

How Should We Use Outreach to Improve Access? • Stephanie G. Vanterpool, MD MBA

How Mentorship Can Improve Representation • Susan M. Moeschler, MD

How Research Can Find the Solution • Charles Odonkor, MD MA

7-8 pm CST • Engineering Principles of DBS and SCS in Clinical Practice: Emerging Concepts
Moderator • Marom Bikson, PhD

SCS: New Waveforms and Mechanisms of Action • Scott F. Lempka, PhD

SCS: Subthreshold Mechanisms • Marom Bikson, PhD

DBS: New Waveforms and Lead Designs • Svjetlana Miocinovic, MD PhD

DBS: Synaptic Suppression (or StimVision) • Cameron McIntyre, PhD

7-8 pm CST • Open- vs. Closed-Loop Neurostimulation and Enabling Biomarkers
Moderator • John D. Rolston, MD PhD

Neurochemical Signals for Closed-Loop Treatments • Kendall H. Lee, MD PhD

Responsive vs. Continuous Stimulation for Epilepsy • John D. Rolston, MD PhD

7-8 pm CST • American Academy of Pain Medicine (AAPM) Session: Integrating Neuromodulation into Multimodal Pain Care
Moderator • Judith Scheman, PhD

Optimal Timing of Spinal Cord Stimulation in the Treatment Algorithm Can Improve Outcomes • Jonathan M. Hagedorn, MD

The Device Is Implanted and Now You Need to Taper: How to Do It • Antje M. Barreveld, MD

Adjunctive Medical Therapy to Help Optimize Neuromodulation Outcomes • Ajay D. Wasan, MD MSc

Optimizing Psychosocial Factors in Prospective SCS Patients/Candidates • Judith Scheman, PhD
7-8 pm CST • Beyond Depression: Use of TMS for the Treatment of Pain, Tinnitus, and Other Neuropsychiatric Illnesses
Moderator • Andrew F. Leuchter, MD

Technique and Mechanisms of rTMS Therapy • Andrew F. Leuchter, MD

Indications for rTMS for Treatment of Neuropsychiatric Illness • Noah S. Philip, MD

Use of rTMS for the Treatment of Pain and Addictions • Colleen A. Hanlon, PhD

Use of rTMS for the Treatment of Tinnitus • Berthold Langguth, MD

Saturday, January 16

9-10:25 am CST • Plenary Session III
Moderator • David A. Provenzano, MD

*Honored Guest Lecturer: Fighting Bias and Racism in Medicine by Enhancing Diversity • Quinn Capers IV, MD

Neuromodulation and Obstructive Sleep Apnea • David T. Kent, MD

Neurocardiology and Neuromodulation • Kalyanam Shivkumar, MD PhD

10:45-11:45 am CST • Placing Leads Elsewhere: Peripheral Nerve Stimulation
Moderator • Christopher Gilligan, MD MBA

Genicular Nerve Stimulation • Corey W. Hunter, MD

Peripheral Nerve Stimulation: The Transition from Acute to Chronic Pain • Marc A. Huntoon, MD

Occipital Nerve Stimulation • Jennifer A. Sweet, MD

Suprascapular Nerve Stimulation • Michael A. Fishman, MD MBA

10:45-11:45 am CST • Keeping Up with the Dynamic Field of Neuromodulation: Mentoring, Educational and Teaching Techniques of the Future
Moderator • Magdalena M. Anitescu, MD PhD

Future of Hands-On Instructions in Neuromodulation Techniques: The Role of Virtual Reality and Immersive Touch for the General Practitioner • Maged Guirguis, MD

Simulation Scenarios in Neuromodulation: Learning the Basics, Advancing to Expertise • Dalia H. Elmofty, MD

Problem-Based Learning: Acquire Knowledge to Effectively Trouble Shoot and Treat Complications in Neuromodulation • Magdalena M. Anitescu, MD

Share Your Cases and Your Science: The Effects of Social Media in Disseminating Science Advancements and New Educational Information • Jacqueline S. Weisbein, DO
10:45-11:45 am CST • Strategies to Personalize Invasive Neurostimulation Therapies
Moderator • Scott F. Lempka, PhD

Software-Based Targeting and Optimization of Deep Brain Stimulation • Cameron McIntyre, PhD

Optimizing Deep Brain Stimulation for Parkinson's Disease Using Physiologic Signals and Biophysical Modeling • Svjetlana Miocinovic, MD PhD

Patient-Specific Analysis of Spinal Cord Stimulation for Pain • Scott F. Lempka, PhD

Electroencephalography During Spinal Cord Stimulation for Pain • Ilknur Telkes, MSc PhD

10:45-11:45 am CST • Neurostimulation in Epilepsy: Thinking Outside the Box
Moderator • Dario J. Englot, MD PhD

Choosing Thalamic Stimulation Strategies • Rushna Ali, MD

Case Discussions: Closed vs. Open Loop Thalamic Programming Strategies • David Burdette, MD

Toward Patient-Specific Response Biomarkers in Closed-Loop Brain Stimulation • Mark Richardson, MD PhD

Case Discussions: Implantation Without Intracranial Monitoring • Jason M. Schwalb, MD

10:45-11:45 am CST • The Neurostimulation Appropriateness Consensus Committee (NACC) Guidelines: Update
Moderator • Tim J. Lamer, MD

NACC Guidelines: Overview and Update • Jay S. Grider, DO PhD MBA

NACC Guidelines: Coagulation Management • Susan M. Moeschler, MD

NACC Guidelines: Infection Management • Tim J. Lamer, MD

NACC Guidelines: Neurologic Injury Prevention and Mitigation • Leonardo Kapural, MD PhD

10:45-11:45 am CST • Surgical Therapies for Psychiatric Diseases
Moderator • Sameer A. Sheth, MD PhD

Laser Ablation for Obsessive-Compulsive Disorder (OCD) • Nicole McLaughlin, PhD

Deep Brain Stimulation (DBS) for Depression • Darin D. Dougherty, MD

Adaptive Deep Brain Stimulation (DBS) for Obsessive-Compulsive Disorder (OCD) • Wayne Goodman, MD

Individualizing Deep Brain Stimulation (DBS) Therapy Using Intracranial EEG • Kelly R. Bijanki, PhD
Saturday, January 16 • Oral Abstract Presentations

1:10-2:10 pm CST • Neurosurgical Neuromodulation (Movement Disorders, Psychiatric, and Epilepsy)
Moderator • Nader Pouratian, MD PhD

Directional versus Omnidirectional Deep Brain Stimulation: Results of a Multicenter Prospective Blinded Study (Abstract 15270) • Jan Vesper, MD PhD

The Effect of Stn-DBS on Cerebral Hemodynamics in Parkinson's Disease (Abstract 15166) • Atilla Yilmaz, MD

Perfusion MRI findings in motor cortex and basal ganglions in parkinson's patients (Abstract 15168) • Atilla Yilmaz, MD

Pain and Interoceptive Awareness Outcomes of Chronic Pain Patients with Spinal Cord Stimulation (Abstract 15345) • Breanna L. Sheldon, MS

FMRI Directional Connectivity Abnormalities of Cortical and Subcortical Arousal Regions in Temporal Lobe Epilepsy (Abstract 15554) • Hernán FJ González, MS

Altered Thalamo-Occipital Brain Networks Exist in People with Mesial Temporal Lobe Epilepsy (Abstract 15305) • Kristin E. Wills, BS

Relating Effective Connectivity in Resting State fMRI and SEEG in Unilateral Mesial Temporal Lobe Epilepsy (Abstract 15625) • Saramati Narasimhan, PhD

1:10-2:10 pm CST • Engineering
Moderator • Marom Bikson, PhD

Microfabricated Polyimide-Based Neural Interfaces with Improved Reliability (Abstract 15376) • Jack W. Judy, PhD

Motor Neuroprosthesis Implanted using Cerebral Venography Improves Activities of Daily Living in Severe Paralysis (Abstract 15026) • Thomas Oxley, MD PhD

Chronic Pain Patients During COVID-19: Multidimensional data-driven analyses reveal attributes of pandemic susceptibility and resilience (Abstract 15090) • Richard L. Rauck, MD

Implications of Pt-Ir Electrode Surface Modifications on the Total Electrical Energy Delivered through Neurostimulator Systems (Abstract 15442) • Matt D. Johnson, PhD

Influence of Physiological and Technical Factors on the Neural Response to Spinal Cord Stimulation (Abstract 15548) • Evan Rogers, BS

Progress on Developing an All-Silicon Carbide Neural Interface as a MRI Compatible Implantable Technology (Abstract 15275) • Stephen E. Saddow, PhD

Cell-type Specific Modulation of Neuronal Firing with Transcranial Ultrasonic Stimulation (Abstract 15471) • Jacek Dmochowski, PhD
Sex-Differences in the Efficacy of Spinal Cord Stimulation: A Retrospective Cohort Study (Abstract 15336) • Jacob R. Caylor, MD

Racial Disparities in Spinal Cord Stimulation among the Medicare Population (Abstract 15181) • Mark R. Jones, MD

Interconnectivity of Sleep and Pain: Long-Term Objective Sleep Quality Improvements with Closed-Loop Spinal Cord Stimulation (Abstract 15239) • Shrif J. Costandi, MD

A PROSPECTIVE, RANDOMIZED SINGLE-BLINDED CROSSOVER STUDY COMPARING HIGH-FREQUENCY 10,000HZ AND BURST SPINAL CORD STIMULATOR THERAPIES (Abstract 15296) • Edward B. Braun, MD

Closed-Loop SCS: EVOKE RCT Long-term & Secondary Outcomes at 12 Months (Abstract 15426) • Nagy A. Mekhail, MD PhD

Migration and Fracture Rates in DRG-S Anchoring and Non-Anchoring Techniques: A Multicenter Pooled Data Analysis (Abstract 15624) • Kenneth B. Chapman, MD

DTM SCS for Low Back and Leg Pain: Profound Responders and Quality of Life Benefits (Abstract 15463) • Ricardo Vallejo, MD PhD

Closed-loop Neuromodulation Restores Memory After Traumatic Brain Injury (Abstract 15276) • Robert E. Gross, MD PhD

Wireless Peripheral Neurostimulation for the Treatment of Craniofacial Pain: Interim Results* Prospective Randomized Controlled Trial (Abstract 15445) • Nameer R. Haider, MD

The Effects of Theta-Burst Stimulation on Word Recognition Task Performance: A Pilot Study (Abstract 15521) • Alexandra Ossowski, MA

Advances in Non-Invasive Electrical Spinal Cord Stimulation to Promote Recovery in Chronic Spinal Cord Injury (Abstract 15092) • Chet Moritz, PhD

Knowledge of Neuromodulation in Rural Family Medicine Training Programs: A Call for Implementation Research (Abstract 15483) • Natasha Thompson, BS

Education before stimulation: Survey of patients and their caregivers about effectiveness of pre-neuromodulation education session (Abstract 15492) • Victoria Bains, RN

Trial and chronic spinal cord stimulation in restoration of volitional motor control after SCI (Abstract 15474) • Prathima Basa, MBBS
1:10-2:10 pm CST • Basic Science
Moderator • Julie G. Pilitsis, MD PhD

SCS with Differential Target Multiplexed Programming Regulates Calcium Transport in a Model of Neuropathic Pain (Abstract 15454) • Ricardo Vallejo, MD PhD

Differential Target Multiplexed SCS Modulates Potassium Regulatory Pathways in an Animal Model of Neuropathic Pain (Abstract 15427) • Ricardo Vallejo, MD PhD

A Computational Model of Upper Thoracic High-Frequency Spinal Cord Stimulation to Optimize Inspiratory Muscle Activation (Abstract 15583) • Hans J. Zander, MSE

Effects of External Focused Ultrasound on Inflammatory Markers in Common Peroneal Nerve Injury (Abstract 15200) • Abigail Hellman, BA

Differential Target Multiplexed SCS Modulates Neuropathic Pain Proteins More Profoundly than HR and LR SCS (Abstract 15458) • David L. Cedeno, PhD

Human ventromedial Prefrontal Cortex (vmPFC) Lesions Enhance Pain Tolerance and Increase Expectation-Related Variability in Pain (Abstract 15549) • Julian C. Motzkin, MD PhD

Analgesic Effects of Dorsal Root Ganglion Stimulation with Burst Pattern (Abstract 15617) • Bin Pan, MD PhD

1:10-2:10 pm CST • Pain
Moderator • Nebjosa Nick Knezevic, MD PhD

Percutaneous PNS of the Medial Branch Nerves for Chronic Back Pain following Radiofrequency Ablation (Abstract 15179) • Timothy R. Deer, MD

Improvement in Motor Deficits Following Percutaneous Peripheral Nerve Stimulation (Abstract 15212) • Puneet Gupta, BS

24-Month Avalon Study Data Indicates Improved Pain Reduction with Decreased Opioid Use (Abstract 15215) • Charles Brooker, MBBS

A Medicolegal Analysis in Pain Medicine Involving Implantable Medical Devices (Abstract 15070) • Taif Mukhdomi, MD

Secondary Respiratory Outcomes of a Phase 1 Placebo-Controlled Trial: Buprenorphine Buccal Film Versus Oral Oxycodeone (Abstract 15347) • Lynn Webster, MD FACPM FASAM

Review Of tArged Drug delivery versus conventional medical Management in non-mAlignant chronic Pain: ROADMAP (Abstract 15353) • Anjum Bux, MD

Peripheral Nerve Stimulation (PNS) for Mononeuropathy: Correlation with the Collaborative Health Outcomes Information Registry (CHOIR) (Abstract 15360) • Alice H. Li, MD
On-Demand

Clinical Trial Design
Conducting Sham Controlled Neuromodulation Trials • Sam S. Eldabe, MB ChB FRCA FFPMRCA

Outcome Selection in Neuromodulation Trials • Nebojsa Nick Knezevic, MD PhD

Cost Effectiveness in Neuromodulation • Kenneth D. Candido, MD

Education, Diversity, and Future Therapies
Beyond Pain: Effects of Neuromodulation on Physiologic Vascular Changes and Limb Salvage in Diabetes Mellitus • Magdalena M. Anitescu, MD PhD

Better Than the Pacemaker: Neuromodulation in Anginal Episodes, Heart Failure, and Ventricular Storms • Kalyanam Shivkumar, MD PhD

Engineering – Cellular Effects of Neurostimulation
In Vivo Imaging of the Cellular Response to Intracortical Microstimulation • Takashi DY Kozai, PhD

Recruitment of Myelinated Axons with High-Frequency Electrical Interference • Marco Capogrosso, PhD

Engineering – Big Data in Neuromodulation
RAD-PD (Registry for the Advancement of Deep Brain Stimulation Therapy in Parkinson's Disease) • Joohi Jimenez-Shahed, MD

High-Throughput MRI-Based Personalization of Transcranial Direct Current Stimulation for Older Adults • Adam J. Woods, PhD

Engineering – Non-Invasive Brain Stimulation and Memory
Effects of Cognition Oriented Treatments and Concurrent tDCS in Dementia • Benjamin M. Hampstead, PhD

Effects of Transcranial Direct Current Stimulation Paired with Cognitive Training on Functional Connectivity of the Working Memory Network in Older Adults • Adam J. Woods, PhD

Engineering – Mechanistic Studies and Novel Indications of Spinal Cord Stimulation
Sensory Restoration Using Epidural Electrical Stimulation • Lee E. Fisher, PhD

Epidural Spinal Cord Stimulation for Lower Limb Motor Function Recovery • Claudia Angeli, PhD

Intracranial Neuromodulation
Subcortical Arousal Center Connectivity and Cognitive Correlates in Epilepsy • Dario J. Englot, MD PhD

Spinal Cord Functional Connectivity and Clinical Implications • Li Min Chen, MD PhD

Spinal Cord Stimulation for Freezing of Gait • Clement Hamani, MD PhD
Pain – A Critical Appraisal of Dorsal Root Ganglion Stimulation
DRG Stimulation – Outcomes • Marc A. Russo, MD

Critical Appraisal of DRG Stimulation • Sam S. Eldabe, MB ChB FRCA FFPMRCA

Pain – Optimizing Intrathecal Strategies
Optimizing the Patient Before During Trial and Implantation • Michael F. Saulino, MD PhD

Novel Dosing and Delivery Strategies • Dawood Sayed, MD
Optimizing Medications and Combinations That Work • Salim M. Hayek, MD PhD
Maintenance Strategies and Evaluation for Diminished Efficacy • Jay S. Grider, DO PhD MBA

Pain – Optimizing Neuromodulation Therapies
Managing Obesity Prior to Neuromodulatory Therapies • Jessica Jameson, MD

Optimizing the Immunocompromised Patient Prior to Neuromodulatory Therapies • Susan M. Moeschler, MD
Optimizing the Tobacco Patient Prior to Neuromodulatory Therapies • Nebojsa Nick Knezevic, MD PhD

Pain – Neuromodulation for Back Pain
Burst Waveforms and High-Frequency Stimulation in Low Back Pain • Jonathan D. Carlson, MD
DRG Stimulation and Percutaneous PNS for Low Back Pain • Kenneth B. Chapman, MD
Multifidus Neuromuscular Stimulation in Back Pain • Mayank Gupta, MD
Restorative Treatment Mechanisms for Low Back Pain • Christopher Gilligan, MD MBA

Pain – Spinal Cord Stimulation Programming
Spinal Cord Stimulation Programming: The Basics • Christopher Gilligan, MD MBA

Unpacking the Black Box: SCS Programming in Clinical Trials • Kiran V. Patel, MD
Can Closed-Loop Therapy Obviate Frequent Reprogramming? • Lawrence Poree, MD PhD MPH

Pain – Neuromodulation Waveforms
Evidence & Clinical Indications for Burst Waveforms and High-Frequency Neurostimulation • Kiran V. Patel, MD

Evidence & Clinical Indications for DRG as a Salvage Therapy • Kenneth D. Candido, MD

Pain – Opioids and Neuromodulation
Opioid Titration Prior to Neuromodulation • Jessica Jameson, MD

Opioid Reduction as Result of Neuromodulation • Maunak V. Rana, MD
Psychiatry
Structural Plasticity of the Hippocampus and Amygdala Induced by Electroconvulsive Therapy in Major Depression • Amber M. Leaver, PhD

Modern Applications: Unilateral Ultra-Brief Pulse ECT • Gregory Sahlem, MD

Pharmacological Mechanisms of Action of Ketamine and Therapeutic Considerations • Asim A. Shah, MD

The Role of Ketamine in the Treatment-Resistant Depression Clinic • Patricio Riva Posse, MD

Advanced Practice Provider
Standardizing Patient Care: Importance of Tracking Your Outcomes • Brittney Misercola, APRN FNP-C CFRN LP

Navigating Through the Precertification Process • Teresita Devera, MSN CRNP ANP-BC

To Treat or Not to Treat: Management of Complications • Beth Parente, PA-C

When Do You Call It Quits and Options After Neuromodulation Therapy for Chronic Pain Fails • Ashley Comer, MSN APRN FNP-C

More Top Abstracts
Intermittent Dorsal Root Ganglion Stimulation is as Efficacious as Continuous Dosing: a Randomized Controlled Trial • Kenneth B. Chapman, MD

Quantitative Assessment in Diabetic Peripheral Neuropathy after High Frequency Spinal Cord Stimulation: 6 Month Results • Narayan R. Kisson, MD

Non-Invasive High-Frequency Impulse Therapy for Treatment of Chronic Back Pain: A Multi-center, Randomized, Sham-Controlled Trial • Kasra N. Amirdelfan, MD
Symposia & Exhibits

Thursday, January 14
6-7:30 pm CST • Opening Reception in Exhibit Hall

Friday, January 15
2:45-3:45 pm CST • Sponsored Symposium – Boston Scientific (Non-CME)
The NEW WaveWriter Alpha™ SCS System: The Next Era of Personalization

8-8:45 pm CST • Exhibit Hall Open

Saturday, January 16
7:45-8:45 am CST • Sponsored Symposium – Medtronic (Non-CME)
A Mission to Alleviate Pain and Restore Health

12-1 pm CST • Sponsored Symposium – Abbott (Non-CME)
UNBURDEN YOUR OUTCOMES WITH BURSTDR™ STIMULATION AND THE INTRODUCTION OF ANATOMICAL LEAD PLACEMENT*

12-1 pm CST • Sponsored Symposium – Nevro (Non-CME)

2:15-3 pm CST • Exhibit Hall Open

Tuesday, January 19
7-8 pm CST • Sponsored Symposium – Stimwave (Non-CME)
Stimwave PNS & SCS: Harness the Power of HF-EMC