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About the American Clinical Neurophysiology Society (ACNS)

ACNS’ mission is to serve patients and society by empowering members to advance the science, practice and profession of clinical neurophysiology. This mission serves to fulfill the vision to optimize neurologic health through understanding of nervous system function.

Founded in 1946 and originally named the American Electroencephalographic Society (AEEGS), ACNS is the major professional organization in the United States devoted to the establishment and maintenance of standards of professional excellence in clinical neurophysiology in the practice of neurology, neurosurgery and psychiatry. ACNS members utilize neurophysiology techniques in the diagnosis and management of patients with disorders of the nervous system and in research examining the function of the nervous system in health and disease.

ACNS OFFICERS AND COUNCIL

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Suzette M. LaRoche, MD, FACNS
University of North Carolina

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Jaime R. Lopez, MD, FACNS
Stanford University

Second Vice President
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Duke University Medical Center

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Nicholas S. Abend, MD, MSCE, FACNS
Children’s Hospital of Philadelphia

Treasurer
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University of Kentucky

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Ohio State University Medical Center

Past President
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The Hospital for Sick Children

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Weill Cornell Medicine

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Rush University Medical center

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Stanford University

Elizabeth Gerard, MD, FACNS
Northwestern University

Hiba A. Haider, MD, FACNS, FAES
University of Chicago

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Yale University

Yafa Minazad, DO, FACNS
Vituity

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Johns Hopkins University

Tammy Tsuchida, MD, PhD, FACNS
Children’s National Health System

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Stanford University

Journal Editor
Aatif M. Husain, MD, FACNS
Duke University Medical Center

AMA Officer
Marc R. Nuwer, MD, PhD, FACNS
UCLA

ANNUAL MEETING & COURSES PLANNING COMMITTEES

Course Committee
Co-Chairs
Meriem Bensalem-Owen, MD, FACNS
Hiba A. Haider, MD, FACNS

Members
Maureen P. Carroll, R.EEG/EPT, RPSGT, CNIM
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Giridhar Kalamangalam, MD, DPhil, FACNS
Lynn Liu, MD, FACNS
Shavonne Massey, MD, FACNS
Sarah E. Schmitt, MD, FACNS
Devon I. Rubin, MD, FACNS
Mirela V. Simon, MD, MSc, FACNS

Ex-Officio
Nicholas S. Abend, MD, MSCE, FACNS
Pegah Afra, MD, FACNS
Elizabeth Gerard, MD, FACNS
Jong Woo Lee, MD, PhD, FACNS
Cormac O’Donovan, MD, FACNS
Courtney J. Wusthoff, MD, FACNS
CME Committee
Co-Chairs
Jong Woo Lee, MD, PhD, FACNS
Courtney J. Wusthoff, MD, FACNS

Members
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Sasha Alick-Lindstrom, MD
Kapil Arya, MBBS, FAAP, FANA
Susanta Bandyopadhyay, MD, PhD, FACNS
Tyson Burghardt, MD
Amy Crepeau, MD, FACNS
Cornelia Drees, MD, FACNS
Charles M. Epstein, MD, FACNS
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Camilo Gutierrez, MD
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Ann Hyslop, MD, FACNS
Akio Ikeda, MD, PhD, FACNS
Mohammed Ilyas, MD, FACNS
Monica P. Islam, MD, FACNS
Kitti Kaiboriboon, MD, FACNS
Fawad A. Khan, MD, FACNS
Ammar Kheder, MD
Eliane Kobayashi, MD, PhD
Ruple S. Laughlin, MD, FACNS
Xiangping Li, MD
Natarie Liu, MD
Jennifer McKinney, MD, FACNS
Yara Mikhail-Demo, MD, FACNS
Moshe A. Mizrahi, MD
Ismail Mohamed, MD, FACNS
Iryna Muzyka, MD, FACNS
Viet Nguyen, MD, FACNS
Juan Ochoa, MD, FACNS
Kalarickal Oommen, MD, FAAN, FACNS
Joel Oster, MD, FACNS
Kimberly Pargeon, MD, FACNS
Jun T. Park, MD, FAES, FACNS

Program Committee
Co-Chairs
Pegah Afra, MD, FACNS
Elizabeth E. Gerard, MD, FACNS

Members
Nicholas S. Abend, MD, MSCE, FACNS
Jayant N. Acharya, MD, FACNS
Halley B. Alexander, MD
Kapil Arya, MBBS, FAAP, FANA
William J. Bosl, PhD, FACNS, FAMIA
Richard C. Burgess, MD, PhD, FACNS
Amy Crepeau, MD, FACNS
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Gloria M. Galloway, MD, MBA, FACNS
Ezechiel Gleichgercht, MD, PhD
Cecil D. Hahn, MD, MPH, FACNS
Mark Hallett, MD, FACNS
Ioannis Karakis, MD, PhD, MSc, FACNS
Linda Kelly
Suzette M. LaRoche, MD, FACNS
Ruple S. Laughlin, MD, FACNS
Leslie Lee, MD, FACNS
Jaime R. Lopez, MD, FACNS
Luis Carlos Mayor-Romero, MD, FACNS
Michael McGravely, MD, FACNS
Daniel L. Menkes, MD, MHSA, FACNS
Ismail S. Mohamed, MD, FACNS
Heidi M. Munger Clary, MD, MPH, FACNS
Marcus C. Ng, MD, FRCP, CSCN, FACNS
Jonathan A. Norton, PhD, FACNS
Aoiife O’Carroll, MD
Prachi Parikh, MD
Jun T. Park, MD, FAES, FACNS
Phillip L. Pearl, MD, FACNS
Elana Pinchefsky, MD
Eva K. Ritzl, MD, MBA, FACNS
Devin I. Rubin, MD, FACNS
Maria C. Sam, MD, FACNS
Prasad N. Policherla, MD, FAHA, FAAN
Jeffrey M. Politsky, MD, MSc, FRCP, FACNS
Chyrystal M. Reed, MD, PhD
Maria C. Sam, MD, FACNS
Sarah E. Schmitt, MD, FACNS
Divya Singhah, MD
Fahd Sultan, MD, FACNS
Lily C. Wong-Kisiel, MD
Rodrigo Żepeda, MD

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Pegah Afra, MD, FACNS
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Hiba A. Haider, MD, FACNS, FAES
Susan T. Herman, MD, FACNS
Cormac O’Donovan, MD, FACNS

Stephan U. Schuele, MD, MPH, FACNS
Vishal Shah, MBBS
Asim Shahid, MD
Raj D. Sheth, MD, FAAN, FACNS
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Rajdeep Singh, MD, FACNS
Saurabh R. Sinha, MD, PhD, FACNS
Fahd Sultan, MD, FACNS
James Xiang Tao, MD, PhD, FACNS
Ashley E. Thomas, MD
Martin Veilleux, MD, FRCP (C), FACNS
Robyn Whitney, MD, FRCP
JoJo (Qian-Zhou) Yang, MD

Ex-Officio:
Meriem Bensalem-Owen, MD, FACNS
Adriana Bermeo-Ovalle, MD, FACNS, FAES
Hiba A. Haider, MD, FACNS, FAES
Paulo Andre T. Kimaid, MD, PhD, FACNS
Jong Woo Lee, MD, PhD, FACNS
Courtney J. Wusthoff, MD, FACNS

About the American Clinical Neurophysiology Society (ACNS)
ANNUAL MEETING & COURSES PLANNING COMMITTEES

ACNS EXECUTIVE OFFICE
555 E Wells St, Suite 1100
Milwaukee, WI 53202
Phone: (414) 918-9803  Fax: (414) 276-3349
info@acns.org  www.acns.org
General Meeting Information

ABOUT THE ANNUAL MEETING & COURSES
This year’s scientific program will feature the latest scientific advances in clinical neurophysiology presented by leading national and international experts in the field. This dynamic program has more choices than ever including the return of the Joint ACNS and International Society symposia, presentations from speakers who are experts in their field. The parallel sessions will provide simultaneous sessions for interests in EEG, electrodiagnosis and neurophysiologic intraoperative monitoring.

The meeting also features a number of opportunities for networking, including a Professional Development Mentorship Program in which residents and fellow applicants are paired with senior ACNS members and provided an opportunity to connect.

Hybrid Format
The 2022 Annual Meeting & Courses will be a hybrid event, offering attendees the option of joining in-person or virtually.

The Annual Courses and select Annual Meeting symposia will be live-streamed, and the Annual Courses will also be available on-demand following the meeting. Annual Meeting sessions will not be recorded nor available for viewing after the meeting.

Delegates attending in Orlando will also have full access to the virtual meeting platform.

COVID Safety Protocols
ACNS will ask individuals registering for the in-person event to attest that they are fully vaccinated or will be fully vaccinated by the time of the meeting. Individuals unable to make this attestation are asked to choose the virtual registration option.

Masks will be required in all areas of the Annual Meeting & Courses, including the exhibit hall, session rooms, committee meetings and common areas. Masks may only be removed when actively eating or drinking.

IMPORTANT DATES

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
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<tbody>
<tr>
<td>Poster Abstract Submission Open</td>
<td>September 15, 2021</td>
</tr>
<tr>
<td>Advance Registration Open</td>
<td>November 1, 2021</td>
</tr>
<tr>
<td>Poster Abstract Submission Deadline</td>
<td>November 1, 2021</td>
</tr>
<tr>
<td>Poster Abstract Decision Notification</td>
<td>December 1, 2021</td>
</tr>
<tr>
<td>Advance Registration Deadline</td>
<td>December 25, 2021</td>
</tr>
<tr>
<td>Advance Registration Deadline</td>
<td>January 4, 2022</td>
</tr>
<tr>
<td>Housing Deadline</td>
<td>January 4, 2022</td>
</tr>
<tr>
<td>Registration Cancellation Deadline</td>
<td>January 7, 2022</td>
</tr>
<tr>
<td>Courses Handout Website Open</td>
<td>January 19, 2022</td>
</tr>
<tr>
<td>CME Certificate Program Opens (pre-registered delegates)</td>
<td>January 25, 2022</td>
</tr>
<tr>
<td>CME Certificate Program Opens (delegates registering onsite)</td>
<td>February 13, 2022</td>
</tr>
<tr>
<td>CME Certificate Claim Deadline</td>
<td>April 1, 2022</td>
</tr>
<tr>
<td>Courses Handout Website Closes</td>
<td>April 11, 2022</td>
</tr>
</tbody>
</table>

REGISTRATION RATES & PROCEDURE

<table>
<thead>
<tr>
<th></th>
<th>Annual Meeting</th>
<th>Annual Courses - ALL ACCESS</th>
<th>Half-Day Course (Wednesday)</th>
<th>Half-Day Course (Wed PM; Thurs AM)</th>
<th>Short Courses (Fri PM)</th>
</tr>
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<tbody>
<tr>
<td>Jr. Tech/Reduced Rate</td>
<td>$270</td>
<td>$175</td>
<td>$65</td>
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<td>$400</td>
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<td>$250</td>
<td>$125</td>
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<tr>
<td>Non-Member Fellow</td>
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<tr>
<td>Resident, Student,</td>
<td>$575</td>
<td>$475</td>
<td>$350</td>
<td>$175</td>
<td>$85</td>
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<tr>
<td>Technologist, Reduced</td>
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<td>$175</td>
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<td></td>
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</tr>
<tr>
<td>Country Reduced Rate</td>
<td>$250</td>
<td>$125</td>
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</tbody>
</table>

Save on registration fees and avoid long lines onsite when you register before the advance deadline of January 4!

Online registration is a fast and easy way to register in advance, however, delegates may also register by completing and mailing or faxing the PDF registration form available at https://www.acns.org/meetings/annual-meeting--courses/2022-annual-meeting--courses/registration

All registrations will be confirmed by email. If you do not receive a confirmation within two weeks of submission, please contact the ACNS Executive Office at (414) 918-9803 or info@acns.org.

HEADQUARTERS HOTEL & HOUSING RESERVATIONS
Renaissance Orlando at Sea World
6677 Sea Harbor Drive
Orlando, FL 32821

Group Rate
$229/night single/double occupancy

Reservations at the group rate will be accepted until January 4, 2022 OR until the block is full, whichever occurs first. Reservations may be made on a space-available basis after the housing deadline of January 4, 2022. We recommend booking your hotel as soon as your travel plans have been confirmed.

The ACNS Annual Meeting website is the ONLY ACNS-authorized system for registering for the conference or booking guest rooms at the Renaissance Orlando at Sea World. Should you be contacted by any group claiming to represent ACNS and urging you to book hotel rooms or register for the meeting through their services (especially at “lower” rates) please be aware that ACNS does not work through or contract with any such groups.
MEETING DESCRIPTION
The ACNS Annual Meeting & Courses are designed to provide a solid review of the fundamentals and the latest scientific advances in both “central” and “peripheral” clinical neurophysiology. Presentations at the Annual Meeting & Courses are given by leading experts in the field and have value for health care professionals who utilize clinical neurophysiology. Sessions include symposia, workshops, courses and Special Interest Groups, featuring didactic lectures, expert panels, debates and interactive formats. Poster presentations at the Annual Meeting highlight the latest work conducted at clinical neurophysiology centers nationally and internationally.

TARGET AUDIENCE
The Society’s educational activities are directed to clinical neurophysiologists, neurologists, psychiatrists, physiatrists, neurosurgeons, trainees in these disciplines and other physicians and researchers who utilize clinical neurophysiological techniques and knowledge in the diagnosis and management of patients with disorders of the nervous system.

ANNUAL COURSES LEARNING OBJECTIVES
At the end of the Annual Courses, the participant will be able to:
1. Describe the indications for use of clinical neurophysiology techniques in diagnosis of disorders of the nervous system;
2. Incorporate new neurophysiology procedures and technological advances into his/her own clinical practice; and
3. Perform and interpret a broad range of clinical neurophysiology procedures, and integrate the results of these tests into comprehensive patient management plans.

ANNUAL MEETING LEARNING OBJECTIVES
At the end of the Annual Meeting, the participant will be able to:
1. Discuss recent advances in electroencephalography, intracranial EEG, evoked potentials, intraoperative neuromonitoring, magnetoencephalography, electromyography, nerve conduction studies, neurophysiology of neuromodulatory devices and other technologies related to practice of neurophysiology; and
2. Apply advances in clinical neurophysiology techniques to improve the diagnosis of neurologic disorders.

ACCREDITATION STATEMENT
This activity has been planned and implemented in accordance with the Essential Areas and Policies of the Accreditation Council for Continuing Medical Educations (ACCME) through the sponsorship of ACNS. ACNS is accredited by ACCME to provide continuing medical education for physicians.

CREDIT DESIGNATION
Complete credit counts COMING SOON!
Social & Networking Events

WELCOME RECEPTION
Thursday, January 27, 2022 · 7:00 – 8:30pm
Dr. Suzette M. LaRoche, MD, FACNS formally invites all Annual Meeting delegates to attend the ACNS Welcome Reception in the Exhibit Hall. Dr. LaRoche and the ACNS Council are excited to welcome colleagues back together and to toast to the 75th anniversary of ACNS in 2021. Don’t forget to make your $75 donation to the ACNS Strategic Fund to join Dr. LaRoche and Council in a champagne toast!

NEW MEMBER NETWORKING LUNCH
Friday, January 28, 2022 · 12:00 – 1:00pm
ACNS members who have joined the Society in the past year are invited and encouraged to attend the New Member Lunch. ACNS leaders will be in attendance to welcome you to the Society and to discuss all the benefits ACNS membership has to offer.

PROFESSIONAL DEVELOPMENT MENTORSHIP PROGRAM
Participants in the ACNS Professional Development Mentor Program are welcome to make use of a designated meeting area in the common areas on Friday and Saturday during breaks and lunches. Please look for the designated tables as a place to meet up!

LOOKING FOR A MENTOR?
Interested in guiding the next generation of Clinical Neurophysiologists?

Sign up for the ACNS Professional Development Mentor Program! The program is seeking both senior faculty willing to provide guidance and mentorship, as well as residents and fellows looking for direction in their careers both in the larger field of CNP and within ACNS.

Join in and network with some of the best neurophysiologists in the world!
The goals of the ACNS Professional Development mentor program are to:

- Foster career development in Clinical Neurophysiology;
- Encourage active participation in the many activities of ACNS; and
- Facilitate networking among ACNS members.

For more information on being a mentor or mentee please go to https://www.acns.org/education/residents-and-fellows and sign up for the program when you register to attend the 2022 ACNS Annual Meeting in Orlando!
Award Recipients & Lectures

PIERRE GLOOR AWARD PRESENTATION & LECTURE

Walter Paulus, MD
The Pierre Gloor Award is presented annually for outstanding current contributions to clinical neurophysiology research. Dr. Paulus will be recognized and will deliver the 2022 Gloor Lecture on Saturday, January 29, 2022.

ROBERT S. SCHWAB AWARD PRESENTATION & LECTURE

Eva Feldman, MD, PhD
The Robert S. Schwab Award is presented annually for an individual’s outstanding contributions to peripheral clinical neurophysiology research. Dr. Feldman will be recognized and will deliver the 2022 Schwab Lecture on Saturday, January 29, 2022.

HERBERT H. JASPER AWARD PRESENTATION & LECTURE

Eli M. Mizrahi, MD, FACNS
The Herbert H. Jasper Award is presented annually to an individual for a lifetime of outstanding contributions to the field of clinical neurophysiology including research, teaching and mentoring. It is analogous to a lifetime achievement award. Dr. Mizrahi will be recognized and will deliver the 2022 Jasper Lecture on Saturday, January 29, 2022.

MARC R. NUWER SERVICE AWARD PRESENTATION

Frank W. Drislane, MD, FACNS
The Marc R. Nuwer Service Award is presented to an individual in recognition of outstanding service to ACNS and its members, including non-scientific contributions. Dr. Drislane will be recognized during the Annual Business Meeting on Saturday, January 29, 2022.

ACNS DISTINCTION IN TEACHING AWARD

Sarah E. Schmitt, MD, FACNS
This award was created to recognize a mid-career ACNS member for outstanding accomplishments in teaching clinical neurophysiology to fellows, residents, medical students or EEG technologists. Dr. Schmitt will be recognized during the Annual Business Meeting on Saturday, January 29, 2022.

ACNS DISTINCTION IN SERVICE AWARD

Courtney J. Wusthoff, MD, MS, FACNS
This award was created to recognize a mid-career ACNS member who has demonstrated outstanding service to the field of clinical neurophysiology at the institutional or national level. Dr. Wusthoff will be recognized during the Annual Business Meeting on Saturday, January 29, 2022.
## Annual Courses

<table>
<thead>
<tr>
<th>WEDNESDAY, JANUARY 26, 2022</th>
<th>THURSDAY, JANUARY 27, 2022</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>9:00am - 5:00pm</strong></td>
<td><strong>8:00 - 11:00am</strong></td>
</tr>
<tr>
<td><strong>ICU EEG - Part I</strong></td>
<td><strong>Video EEG</strong></td>
</tr>
<tr>
<td>Co-Directors: Courtney Wusthoff, MD, FACNS and Nicholas S. Abend, MD, MSCE, FACNS</td>
<td>Co-Directors: Sarah E. Schmitt, MD, FACNS and Katie Bullinger, MD</td>
</tr>
<tr>
<td><strong>Neurophysiological Intraoperative Monitoring - Part I</strong></td>
<td><strong>8:00am - 12:00pm</strong></td>
</tr>
<tr>
<td>Co-Directors: Eva K. Ritzl, MD, MBA, FACNS and Mirela V. Simon, MD, MSc, FACNS</td>
<td><strong>EMG/NCS - Part I</strong></td>
</tr>
<tr>
<td><strong>9:00am - 12:00pm</strong></td>
<td>Co-Directors: Ruple S. Laughlin, MD, FACNS and Devon I. Rubin, MD, FACNS</td>
</tr>
<tr>
<td><strong>EEG/EMG Technology</strong></td>
<td><strong>ICU EEG - Part II</strong></td>
</tr>
<tr>
<td>Co-Directors: Susan T. Herman, MD, FACNS and Dominic Fee, MD</td>
<td>Co-Directors: Courtney Wusthoff, MD, FACNS and Nicholas S. Abend, MD, MSCE, FACNS</td>
</tr>
<tr>
<td><strong>1:00 - 5:00pm</strong></td>
<td><strong>Neurophysiological Intraoperative Monitoring - Part II</strong></td>
</tr>
<tr>
<td><strong>Basic EEG</strong></td>
<td>Co-Directors: Eva K. Ritzl, MD, MBA, FACNS and Mirela V. Simon, MD, MSc, FACNS</td>
</tr>
<tr>
<td>Co-Directors: Ioannis Karakis, MD, PhD, MSc, FACNS and Jay S. Pathmanathan, MD, PhD</td>
<td><strong>Stereo EEG - Part II</strong></td>
</tr>
<tr>
<td><strong>Stereo EEG</strong></td>
<td>Co-Directors: Giridhar P. Kalamangalam, MD, DPhil, FACNS and Stephan U. Schuele, MD, MPH, FACNS</td>
</tr>
<tr>
<td>Co-Directors: Giridhar P. Kalamangalam, MD, DPhil, FACNS and Stephan U. Schuele, MD, MPH, FACNS</td>
<td></td>
</tr>
</tbody>
</table>

Complete agendas coming soon!

Annual Courses will be presented onsite Orlando, livestreamed on the Virtual Platform, and available on-demand February 1-14, 2022.
THURSDAY, JANUARY 27, 2022

12:15 – 12:45pm Opening Ceremonies
Co-Chairs: Pegah Afra, MD, FACNS and Elizabeth E. Gerard, MD, FACNS

12:45 – 2:00pm Lunch

1:00 - 1:45pm Poster Tours

2:00 - 3:30pm CONCURRENT SESSIONS

Challenging Sensory Nerve Conduction Studies Workshop
Session Director: Devon Rubin, MD, FACNS

Learning Objectives:
At the conclusion of this activity, the learner will be able to:
1. List the indications for the performance of uncommon upper and lower extremity sensory NCS.
2. Explain the method of performing technically reliable uncommon sensory NCS.
3. Perform uncommon sensory NCS.

2:00pm Challenging Sensory Nerve Conduction Studies Workshop
Devon Rubin, MD, FACNS

2:20pm Cases of Uncommon Lower Extremity Sensory NCS
Ruple Laughlin, MD, FACNS

2:40pm Demonstration
Ruple Laughlin, MD, FACNS

Combining EEG and fMRI for Intractable Epilepsy Evaluation: Something Old, Something New
Session Co-Directors: Jean Gotman, PhD, FACNS and Meriem Bensalem-Owen, MD, FACNS

Learning Objectives:
At the conclusion of this activity, the learner will be able to:
1. Describe the techniques in combining EEG recording and fMRI.
2. Review the experience and clinical results obtained by this technique from three North American centers.
3. Discuss the development of this technique and the challenges encountered by a newly formed alliance.

2:00pm Introduction
Meriem Bensalem-Owen, MD, FACNS

2:05pm The Montreal Neurological Institute Experience
Jean Gotman, PhD, FACNS

2:30pm The Cleveland Clinic Foundation Experience
Balu Krishnan, MD

3:00pm The University of Kentucky Alliance Team Experience
Ruta Yardi, MD

Cortical Spreading Depolarizations: Translating Research Insights into Clinical Practice
Co-Directors: Ediberto Amorim, MD, PhD and Britta Lindquist, MD, PhD

Learning Objectives:
At the conclusion of this activity, the learner will be able to:
1. Describe the mechanisms of CSD in health and disease and how CSD contribute to seizure termination and propagation in epilepsy and SUDEP models.
2. Describe the mechanisms targeted by pharmacological agents and neuromodulation interventions for CSD in clinical trials.
3. Identify opportunities and pitfalls of CSD monitoring implementation for patients with acute brain injury with invasive EEG monitoring.

2:00pm Interventional Studies Targeting Cortical Spreading Depolarizations in Humans
Brandon Foreman, MD, FACNS

2:30pm Cortical Spreading Depolarizations: A Novel Seizure Termination Mechanism
David Chung, MD, PhD

3:00pm Pitfalls and Opportunities of Cortical Spreading Depolarizations Monitoring in Critical Care
Ediberto Amorim, MD, PhD

Early Career Training in NIOM: Challenges, Controversies, and Insights
Session Co-Directors: Atif Sheikh, MD and George W. Culler, MD

Learning Objectives:
At the conclusion of this activity, the learner will be able to:
1. Describe the different NIOM practice models available and the advantages/disadvantages of each type of practice.
2. Demonstrate awareness and knowledge of existing controversial topics in NIOM.
3. Design a more appropriate NIOM curriculum for trainees that are looking to incorporate NIOM in their careers.

2:00pm Knowledge Gap Between Current and Ideal Practice in NIOM
Atif Sheikh, MD
George W. Culler, MD

2:15pm Panel Discussion & Debate
Yafa Minazad, DO, FACNS
Inna Keselman, MD, PhD

3:20pm Panel Discussion

= livestreamed  = On-demand  = Spanish language
The Long and Short of EEG Studies: What is the Ideal Duration?

Session Co-Directors: Elson So, MD, FACNS and Adriana Bermeo-Ovalle, MD, FACNS

Learning Objectives:
At the conclusion of this activity, the learner will be able to:
1. Assess the length of routine EEG that increases its yield in seizure disorders.
2. Know the limitations of prolong EMU recordings and the measures to enhance detection of EEG abnormalities and clinical events.
3. Apply factors that determine the duration needed for continuous EEG monitoring in the critically ill.

2:00pm The Routine EEG: How long is “Routine”?
   David Burkholder, MD

2:25pm EEG in Epilepsy Monitoring: How Long to Wait for Events, and How Many?
   Adriana Bermeo-Ovalle, MD, FACNS

2:50pm Critical Care EEG Monitoring: What is the risk of missing seizures?
   Aaron Struck, MD

3:15pm Summary with Open Forum
   Elson So, MD, FACNS

3:30 – 3:45pm Break

3:45 – 5:15pm CONCURRENT SESSIONS

CNP Program Directors’ Symposium

Session Co-Directors: Lynn Liu, MD, FACNS and Ioannis Karakis, MD, PhD, MSc, FACNS

Learning Objectives:
At the conclusion of this activity, the learner will be able to:
1. Explain the various aspects of quality improvement, from study design to production, teaching and publication.
2. Advise a colleague on how to become an educational leader.

3:45pm Introduction
   Lynn Liu, MD, FACNS
   Ioannis Karakis, MD, PhD, MSc, FACNS

3:50pm Quality Improvement in CNP: Basic Principles and Methodology
   Andrea N. Leep Hunderfund, MD

4:10pm Quality Improvement in EEG and Epilepsy
   Lidia M.V.R. Moura, MD

4:30pm Quality Improvement in EMG and Neuromuscular Medicine
   Lyell K. Jones, MD

4:50pm Quality Improvement in Neurophysiologic Intraoperative Monitoring
   Stan Skinner, MD, FACNS

5:10pm Discussion

Complex EMG Waveforms

Session Director: Devon Rubin, MD, FACNS

Learning Objectives:
At the conclusion of this activity, the learner will be able to:
1. Identify the category of waveform of complex EMG waveforms.
2. Understand the pathophysiology and significance of complex appearing or firing spontaneous EMG waveforms.
3. Determine how complex voluntary motor unit potentials helps to determine the type and temporal course of a neuromuscular disease.

3:45pm Introduction and Basic Skills to Identify Complex EMG Waveforms
   Devon Rubin, MD, FACNS

4:30pm Interactive Identification of Examples of Complex Waveforms - Understanding What It is And What It Means
   Devon Rubin, MD, FACNS

Current Research in Neurophysiologic Intraoperative Monitoring

Session Co-Directors: Michael McGarvey, MD, FACNS and Aditya Joshi, MD

Learning Objectives:
At the conclusion of this activity, the learner will be able to:
1. Discuss the findings of the research papers presented and critically evaluate the findings of the papers presented.
2. Describe areas of further research to aid the field of NIOM.

3:45pm Paper 1
   Michael McGarvey, MD, FACNS

4:15pm Paper 2
   Aditya Joshi, MD

4:45pm Paper 3
   Stan Skinner, MD, FACNS
Annual Meeting Scientific Program

SEEG in Posterior Cortex Epilepsy (Joint ACNS/Sociedad Española de Neurofisiología Clínica (SENFC) Symposium)

Session Director: Stephan Schuele, MD, MPH, FACNS, FAAN

Learning Objectives:
At the conclusion of this activity, the learner will be able to:
1. Define the various types of Posterior Cortex Epilepsy (PCE) Syndromes and their presentation.
2. Discuss common etiologies and strategies to explore PCE in adults using SEEG.
3. Discuss common etiologies and strategies to explore PCE in children using SEEG.

3:45pm SEEG in Posterior Cortex Epilepsy (Joint ACNS/Sociedad Española de Neurofisiología Clínica (SENFC) Symposium)
Victoria Fernández, MD, PhD
Stephan Schuele, MD, MPH, FACNS, FAAN

4:15pm Peculiarities of Posterior Cortex Epilepsy in pediatric patients
Marta García-Fernández, MD

4:45pm Stereo EEG evaluation in adult patients with Posterior Cortex Epilepsy
Arturo Ugalde-Canitrot, MD, PhD

Sleep and Circadian Neurophysiology: Principles & Practice

Session Co-Directors: Milena Pavlova, MD and Marcus C. Ng, MD, FRCPC, CSCN (EEG), FACNS

Learning Objectives:
At the conclusion of this activity, the learner will be able to:
1. Demonstrate how circadian rhythms can assess and interact with sleep.
2. Delineate existing and emerging methods for assessing sleep and circadian rhythms from EEG.
3. Apply principles of circadian neurophysiology in a real-life practice environment.

3:45pm Neurophysiological principles of circadian rhythms: Assessment and interaction with sleep
Milena Pavlova, MD

4:15pm Circadian neurophysiology in clinical practice: EEG in the Canadian Arctic
Marcus C. Ng, MD, FRCPC, CSCN (EEG), FACNS

4:45pm Novel methods for sleep and circadian assessment from EEG signals
Kun Hu, PhD

5:15 – 5:30pm BREAK

5:30 - 7:00pm GENERAL SESSION

5:30pm Presentation of the 2021 Cosimo-Âjmone Marsan Award
Aatif M. Husain, MD, FACNS
JCN Editor-in-Chief

5:45pm Presentation of the Young Investigator Travel Awards
Pegah Afra, MD, FACNS and Elizabeth Gerard, MD, FANCS
Program Committee Co-Chairs

6:00pm Introduction of the ACNS President
Suzette M. LaRoche, MD, FACNS

7:00 – 8:30pm WELCOME RECEPTION

JOIN DR. SUZETTE M. LAROCHE AND THE ACNS COUNCIL IN TOASTING TO THE 75TH ANNIVERSARY OF ACNS!
Give75 donors are invited to join Council in a champagne toast in the exhibit hall.

To donate to the ACNS Strategic Fund’s Give75 campaign, visit https://www.acns.org/donate/support-acns

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# Annual Meeting Scientific Program

## FRIDAY, JANUARY 28, 2022

### 7:30 - 8:15am   Poster Tours \(\underline{\text{LS}}\)

### 8:30 - 10:00am  CONCURRENT SESSIONS

#### EEG Activation Methods Revisited

**Session Director:** Jayant N. Acharya, MD, DM, FACNS, FAES, FAAN

**Learning Objectives:**
At the conclusion of this activity, the learner will be able to:
1. Describe the role and controversies of hyperventilation as an EEG activating method.
2. Discuss the mechanisms of photic stimulation induced epileptic activity.
3. Understand and apply the mechanisms for sleep and sleep deprivation to enhance epileptiform activity on EEG.

- **8:30 am**  Hyperventilation: Methods, Effects, Controversies and Updates  
  *Jayant N. Acharya, MD, DM, FACNS, FAES, FAAN*

- **9:00 am**  Photic Stimulation: Methods, Effects on EEG and Mechanisms of Activation  
  *Robert Fisher, MD, PhD*

- **9:30 am**  Sleep and EEG: Mechanisms and Means of Activation  
  *William O. Tatum, IV, DO, FACNS*

#### Mentorship in Clinical Neurophysiology

**Session Co-Directors:** Ioannis Karakis, MD, PhD, MSc, FACNS and Lynn Liu, MD, FACNS

**Learning Objectives:**
At the conclusion of this activity, the learner will be able to:
1. List the key elements of being a good mentor at an individual level.
2. Describe the key elements of being a good mentor at a group level.
3. Identify traits of an appropriate mentor and be a successful mentee.

- **8:30am**  Traditional 1:1 Mentoring  
  *Roy Hamilton, MD, FAAN, FANA*

- **9:00am**  Group Mentoring and Teams Science  
  *Lawrence J. Hirsch, MD, FACNS*

- **9:30am**  How to Identify the Right Mentor and be a Successful Mentee  
  *Monica Dhakar, MD, MS, FACNS*

#### Needle Sticks, Seizures and Bites: Is IONM Safe?

**Session Director:** Jaime R. López, MD, FACNS

**Learning Objectives:**
At the conclusion of this activity, the learner will be able to:
1. Describe who is at risk of IOM needle stick injuries.
2. Determine if the clinical data support that TES-MEPs have a high risk of causing seizures.
3. Develop better strategies for reducing bite injuries related to TES-MEPs.

- **8:30am**  IONM and Sharps Injuries  
  *Aditya Joshi, MD*

- **8:55am**  Seizure Risk and TcMEPs  
  *Jaime R. López, MD, FACNS*

- **9:20am**  TcMEPs and Bite Injuries  
  *Felix Chang, MD*

- **9:45am**  Discussion

#### Polysomnography (PSG) Through the Ages: Specific Considerations and Caveats in Different Age Groups (Joint ACNS/Brazilian Clinical Neurophysiology Society Symposium)

**Session Director:** Stella Marcia Azevedo Tavares, MD, PhD

**Learning Objectives:**
At the conclusion of this activity, the learner will be able to:
1. Describe the normal evolution of sleep (ontogenesis) and recognize normal PSG patterns in children.
2. Describe the normal evolution of sleep (ontogenesis) and recognize normal PSG patterns in adults and elderly.
3. Identify the main technical difficulties for PSG across different age periods in humans.

- **8:30am**  Polysomnography in the Elderly  
  *Stella Marcia Azevedo Tavares, MD, PhD*

- **9:00am**  Polysomnography in Adults  
  *Milena Pavlova, MD*

- **9:30am**  Polysomnography in Children  
  *Rosana Cardoso Alves, MD, PhD*

- **10:00 – 10:30am**  Break

\(\underline{\text{LS}}\) = livestreamed  \(\underline{\text{OD}}\) = On-demand  \(\underline{\text{ES}}\) = Spanish language
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10:30am - 12:00pm  CONCURRENT SESSIONS

Burnout from the Perspective of the Clinical Neurophysiologist: The Pathophysiology, Experience, and Prevention of a Modern Medical Epidemic
Session Co-Directors: Cormac O’Donovan, MD, FRCP, FACNS and Matthew Luedke, MD, FACS

Learning Objectives:
At the conclusion of this activity, the learner will be able to:
1. Describe the pathophysiology of burnout and its relevant clinical neurophysiologic, imaging, and laboratory biomarkers.
2. Describe causes of burnout and the deleterious impact of burnout on clinicians, their patients, and the broader social impact of clinician burnout.
3. Identify and implement common strategies for reducing burnout and improving clinician resiliency.

10:30am Biomarkers of Burnout – Neurophysiology, Radiology, and Chemistry
Cormac O’Donovan, MD, FRCP, FACNS

11:05am Burnout in the Patient, the Clinician, and Society
Zabeen Mahulwala, MD

11:35am Leadership and Burnout—Improving Practice, Strengthening Providers
Matthew Luedke, MD, FACS

Clinical Neurophysiology Resident and Fellow Special Interest Group
Session Co-Directors: Pegah Afra, MD, FACNS and Jeffrey W. Britton, MD, FACS, FAAN, FANA, FAES

This session will feature case presentations by clinical neurophysiology trainees, selected by the ACNS Resident & Fellow Education Committee from submitted case abstracts.

Electric Source Imaging: Current Status of EEG Source Modeling in Localization of Epilepsy
Session Co-Directors: John Ebersole, MD and Prachi Parikh, MD

Learning Objectives:
At the conclusion of this activity, the learner will be able to:
1. Explain the concepts of electric source imaging (ESI).
2. Assess the utility of using source modeling in localization of epilepsy.
3. Analyze the application of ESI in scalp and intracranial EEG as well as about ictal ESI.

10:30am Fundamentals of EEG Source Modeling
John Ebersole, MD

11:00am Intracranial EEG Validation of EEG Source Models
James Tao, MD, PhD

11:30am Ictal EEG Source Modeling
Robert Knowlton, MD

Integrating EMG/NCVs into Clinical Practice
Session Director: Daniel L. Menkes, MD, FACNS

Learning Objectives:
At the conclusion of this activity, the learner will be able to:
• Distinguish between common mononeuropathies, plexopathies and radiculopathies clinically.
• Describe the relative frequencies of these entities in order to design a tailored electrodiagnostic examination.
• Apply proper phraseology to summarize the study’s findings.

10:30am Introduction
Daniel L. Menkes, MD, FACNS

10:35am EMG in the Diagnosis of Neuropathy
Peter Siao Tick Chong

11:00am Ultrasound as a Complement to EMG
Michael Cartwright, MD

11:30am The Role of EMG in Radiculopathy/Spinal Stenosis
Mick J. Perez-Cruet, MD

NIOM State of Art: Learning about Neural Networks and Connectivity
Session Co-Directors: Jay Shils, PhD and Kathleen Seidel, MD, PhD

Learning Objectives:
At the conclusion of this activity, the learner will be able to:
1. Define up-to-date methodological approaches to assess connectivity during neurosurgical procedures.
2. Describe advantages, future potentials but also limitations of those methods and to put them in a critical context.
3. Explain the value of intraoperative guidance and strategy modification.

10:30am DBS- Beta Oscillations and Closed Loop Stimulation
Jay Shils, PhD

10:50am Cortico-Cortical Evoked Potentials in IONM
Davide Giampiccolo, MD

11:10am Cerebello-Cortical Stimulation
Francesco Sala, MD

11:30am Continuous Mapping from Supratentorial to Spine and Collision Studies: Concept Review for the Future
Vedran Deletis, MD, PhD, Kathleen Seidel, MD, PhD

12:00 – 1:00pm  Lunch

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1:00 - 2:30pm  CONCURRENT SESSIONS

EEG Education during Residency: An Uneven Playfield
Session Director: Adriana Tanner, MD, FAES

Learning Objectives:
At the conclusion of this activity, the learner will be able to:
1. Discuss the disparities in EEG teaching during neurology residency.
2. Discuss past and current practices in EEG teaching during residency.
3. Discuss future ways to improve EEG teaching for neurology residents.

1:00pm  Introduction
Adriana Tanner, MD, FAES

1:05pm  EEG Teaching: What Can we Learn from Successful Programs?
Richard Burgess, MD, PhD, FACNS

1:30pm  The Future of EEG Education in Residency
Rebecca Fasano, MD

1:55pm  Current State of EEG Education in the US and Abroad
Fabio Nascimento, MD

2:20pm  Discussion

Evidence II: Challenges in the Establishment of IONM Effectiveness
Session Co-Directors: Stan Skinner, MD, FACNS and David MacDonald, MD

Learning Objectives:
At the conclusion of this activity, the learner will be able to:
1. Define Big Data pros and cons as IONM evidence.
2. Describe how IONM methods differ from typical diagnostic tests.
3. Explain the need for proactive collaboration between all intraoperative team members to generate the best patient outcomes.

1:00pm  Teamwork: The Linchpin between Diagnostic Prediction and Injury
Stan Skinner, MD, FACNS

1:30pm  Risk assessment in machine learning and Big Data: challenges and solutions.
Ana Mirallave-Pescador, MD

2:00pm  Why 2x2 Diagnostic Test Accuracy is Inappropriate for IONM
David MacDonald, MD

Neurophysiology through COVID-19 Pandemic (Joint ACNS/Mexican Clinical Neurophysiology Society Symposium)

Learning Objectives:
At the conclusion of this activity, the learner will be able to:
1. Describe the most frequent findings in the EEG of COVID-19 Patients.
2. Identify the most frequent findings in nerve conduction studies of COVID-19 Patients.
3. Analyze how the COVID-19 pandemic has changed the IOM.

1:00pm  EEG in COVID-19 Patients
Alejandro Zavala, MD, FACNS

1:30pm  Nerve Conduction Studies in COVID-19 Patients
Samantha Pineda, MD

2:00pm  Changes in IOM during COVID-19 Pandemic
Jaime R. López, MD, FACNS

Step Wise Approach to Epilepsy Surgical Planning - For Residents and Fellows
Session Director: Iffat Ara Suchita, MD

Learning Objectives:
At the conclusion of this activity, the learner will be able to:
1. Demonstrate the organized and stepwise approach to epilepsy surgery planning.
2. Conduct education on temporal, extra-temporal sEEG planning.
3. Learn about various neuromodulation devices, as palliative options.

1:00pm  Case Block A
Hae Won Shin, MD

1:25pm  Case Block B
Elson So, MD, FACNS

1:50pm  Case Block C
Iffat Ara Suchita, MD

2:05pm  Case Block D
Lily Wong-Kisiel, MD

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Annual Meeting Scientific Program

**What Have We Learned About the Physiology of Neuromuscular Junction with a Human Model of Presynaptic Dysfunction: Botulinum Toxin Chemodenervation**

Session Director: Renato Verdugo, MD

**Learning Objectives:**

At the conclusion of this activity, the learner will be able to:

1. Recognize and describe the effects of botulinum toxin at the level of the central and peripheral nervous system.
2. Describe the main neurophysiological techniques available to evaluate the effects of botulinum toxin at the central and peripheral levels.
3. Describe chronologically the denervation-reinnervation process that occurs after chemodenervation with botulinum toxin.

1:00pm Findings in EMG, SFEMG, Sensory and Motor Nerve Conduction Studies, Repetitive Stimulation Test, H Reflexes, F Waves and Blink Reflex

TBD

1:30pm The Presynaptic, Synaptic, Postsynaptic, Muscular and Central Effects of Chemodenervation with Botulinum Toxin

Gustavo E. Ramos Burbano, MD, MSci

2:00pm Chronology of the Denervation-Reinnervation Process after Chemodenervation with Botulinum Toxin

Marcondes Franca Jr, MD, PhD

2:30 – 3:00pm BREAK

3:00 - 5:00pm ANNUAL COURSES… CONTINUED

**EMG/NCS - Part II**

Co-Directors: Ruple S. Laughlin, MD, FACNS and Devon I. Rubin, MD, FACNS

**Evoked Potentials**

Co-Directors: Elayna Rubens, MD, FACNS and Viet Nguyen, MD, FACNS

**Neonatal EEG**

Co-Directors: Shavonne Massey, MD, FACNS and William B. Gallentine, DO, FACNS

**Neuromodulation**

Co-Directors: Greg Worrell, MD and Alexander Rotenberg, MD, PhD

**Sleep**

Co-Directors: Marcus C. Ng, MD, FRCPC, CSCN, FACNS and Lynn Liu, MD, FACNS

Complete agendas coming soon!

The Annual Courses will be presented onsite Orlando, livestreamed on the Virtual Platform, and available on-demand February 1-14, 2022.
**Critical Care EEG: Current Concepts and Case Discussion/Actualización y discusión de casos**

Sesson Co-Directors: Camilo Gutierrez, MD and Maria J. Bruzzone Giraldez, MD, MSCR

Learning Objectives:
At the conclusion of this activity, the learner will be able to:
1. Discuss the 2021 ICU EEG terminology, and describe the new components.
2. Identify common management approaches to CEEG findings.
3. Describe the indications and optimal length of cEEG monitoring in critically ill adults.

8:00am **The Use of Continuous EEG (cEEG) in the Critical Care Setting**
Clio Rubinos, MD, MSCR

8:30am **Critical Care EEG Terminology Review and Update**
Andres Fernandez, MD, FACNS

9:00am **Definition, Concepts of “Ictal-Interictal Continuum: (IIC), Clinical Practice and Current Management Practices**
Andres Rodriguez, MD

**Growing and Adding Services to the Epilepsy Services: Adding Value Within and Beyond the Four Walls of Epilepsy Centers**

Sesson Co-Directors: Rajdeep Singh, MD, MS, FACS and Matthew Luedke, MD, FACNS

Learning Objectives:
At the conclusion of this activity, the learner will be able to:
1. Implement and improve telemedicine clinic visits in epilepsy and neurology.
2. Illustrate the utilization of epilepsy navigators within epilepsy centers to improve patient care.
3. Assess and increase utilization of EEG technician services within their centers to meet coding guidelines, help with physician burnout, and improve patient care.

8:00am **Introduction**
Matthew Luedke, MD, FACNS

8:15am **Case Illustration #1**
Moosa Ahsan, MD

8:40am **Case Illustration #2**
Guadalupe Fernandez-baca, MD

9:05am **Case Illustration #3**
Phillipe Kahane, MD

**Neurophysiology of Functional Neurologic Disorders**

Sesson Co-Directors: Mark Hallett, MD, DM (hon), FACNS and Adriana Bermeo-Ovalle, MD

Learning Objectives:
At the conclusion of this activity, the learner will be able to:
1. Discuss the current knowledge regarding functional connectivity abnormalities in patients with functional seizures.
2. Recognize the use of quantitative analysis of Surface EMG in Functional seizures.
3. Identify neurophysiological tools in the diagnosis of Functional Tremor.

8:00am **Introduction**
Mark Hallett, MD, DM (hon), FACNS
Adriana Bermeo-Ovalle, MD, FACNS

8:05am **Brain Connectivity Abnormalities in Functional Seizures (fMRI, EEG and DTI)**
Ali Asadi-Pooya, MD

8:30am **Quantitative Analysis of Surface EMG in Functional Seizures**
Sandor Beniczky, MD, PhD

9:00am **Tools in the Diagnosis of Functional Tremor**
Petra Schwingenschuh, MD

**SEEG Implantation Strategy to Confirm Epileptogenic Zone Hypothesis: Illustrative Case Discussions**

Session Director: Jun T. Park, MD, FAES, FACNS

Learning Objectives:
At the conclusion of this activity, the learner will be able to:
1. Discuss the concepts of SEEG.
2. Describe the indications of SEEG in adults and children.
3. Apply the technique in selected patients with drug resistant focal epilepsy.

8:00am **Principles of SEEG Investigation**
Jun T. Park, MD, FAES, FACNS

8:15am **Case Illustration #1**
Moosa Ahsan, MD

8:40am **Case Illustration #2**
Guadalupe Fernandez-baca, MD

9:05am **Case Illustration #3**
Phillipe Kahane, MD
### Annual Meeting Scientific Program

**The Power of Social Media in Shaping the Future of Clinical Neurophysiology Education**

Session Co-Directors: Meriem Bensalem-Owen, MD, FACNS and Aatif M. Husain, MD

**Learning Objectives:**

At the conclusion of this activity, the learner will be able to:

1. Describe the current use of social media in clinical neurophysiology (CNP) education.
2. Review the various format of social media used and educational content delivered.
3. Discuss the challenges and the opportunities offered by social media for CNP education.

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<tr>
<th>Time</th>
<th>Activity</th>
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<tbody>
<tr>
<td>8:00am</td>
<td>Introduction Meriem Bensalem-Owen, MD, FACNS</td>
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<tr>
<td>8:05am</td>
<td>Perspective from the Social Media Editor of the Journal of Clinical Neurophysiology Rishi Ganesan, MD</td>
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<tr>
<td>8:30am</td>
<td>#TwEEGtorial Rebecca Fasano, MD</td>
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<td>8:55am</td>
<td>#EEGTalk Fabio Nascimento, MD</td>
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<tr>
<td>9:20am</td>
<td>Panel Discussion</td>
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#### 8:00am - 2:00pm CONCURRENT SESSIONS

**Epileptic Encephalopathies Across the Pediatric Spectrum – EEG Utilization in Diagnosis and Management**

Session Co-Directors: Shavonne L. Massey, MD and Janette Mailo, MD, PhD

**Learning Objectives:**

At the conclusion of this activity, the learner will be able to:

1. Explain how conventional EEG can be utilized in diagnosis of epileptic encephalopathy in neonates and children.
2. Discuss how QEEG can supplement conventional EEG seizure detection and prediction value in critically ill neonates and children.
3. Identify the role of ambulatory EEG in pediatric patients with seizures and encephalopathy.

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<tr>
<td>12:30pm</td>
<td>Introduction into Epileptic Encephalopathies Across the Pediatric Spectrum – EEG Utilization in Diagnosis and Management France Fung, MD</td>
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<tr>
<td>12:45pm</td>
<td>Neonatal Epileptic Encephalopathies Chalongchai Phitsanuwong, MD</td>
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<tr>
<td>1:10pm</td>
<td>Role of the Continuous EEG, Quantitative EEG Trends and Ambulatory EEG in Diagnosis and Assessment of Epileptic Encephalopathy in Pediatric Patients Eric Payne, MD</td>
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#### 12:30pm - 2:00pm CONCURRENT SESSIONS

**My Patient's Dizzy. Now what? A Clinical Approach to the Diagnosis and Management of Autonomic Disorders**

Session Director: Mitchell G. Miglis, MD

**Learning Objectives:**

At the conclusion of this activity, the learner will be able to:

1. Interpret the results of autonomic cardiovascular reflex testing including heart rate variability with deep breathing, Valsalva maneuver and head up tilt testing in the setting of clinical cases.
2. Define typical presentations of disorders of autonomic hyperactivity and autonomic failure.
3. Recognize patterns on thermoregulatory sweat testing associated with disorders of central and peripheral autonomic pathways.

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<tr>
<td>12:30pm</td>
<td>Disorders of Autonomic Hyperactivity: Syncope and POTS Mitchell G. Miglis, MD</td>
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<tr>
<td>12:55pm</td>
<td>Disorders of Autonomic Failure and the Utility of Sweat Testing in Clinical Practice Dong-Inn Sinn, MD</td>
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<tr>
<td>1:20pm</td>
<td>Autoimmune Autonomic Syndromes and Future Autonomic Measures Srikanth Muppidi, MD</td>
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<tr>
<td>1:45pm</td>
<td>Discussion</td>
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**Legend:**

- **Ls** = livestreamed
- **Od** = On-demand
- **Es** = Spanish language
New Insights in Intraoperative Neurophysiology for Urological Surgeries
Session Director: Jaime R. López, MD, FACNS and Ignacio Regidor, MD, PhD

Learning Objectives:
At the conclusion of this activity, the learner will be able to:
1. Explain basic neuropsychological techniques applied for pelvic floor examination and their interpretation.
2. Describe the particularities of the intraoperative neuropsychological monitoring in radical prostatectomies.
3. List different intraoperative neuropsychological monitoring techniques used in multimodal IOM in pudendal nerve release surgeries.

12:30pm Neurophysiological Studies of the Pelvic Floor
Armando Tello, MD, PhD

1:00pm Intraoperative Neurophysiological Monitoring for Prostate Surgeries
Guillermo Martín-Palomeque, MD, FACNS

1:30pm Intraoperative Neurophysiological Monitoring in Pudendal Nerve Entrapment Surgery
Lidia Cabañes-Martínez, MD, FACNS

Normal Features of the Intracranial EEG
Session Director: Vasileios Kokkinos, PhD

Learning Objectives:
At the conclusion of this activity, the learner will be able to:
1. Describe the regional differences in intracranial EEG with respect to brain location and their associated changes with the sleep-wake state.
2. Discuss the regional variability of electrophysiological activity across the human brain and its modification through the different states of vigilance.
3. Identify normal iEEG waveforms generated by the human hippocampus.

12:30pm Modeling and Visualization of the Intracranial EEG
Giridhar Kalamangalam, MD, DPhil, FACNS

1:00pm An Electrical Atlas of the Human Brain: A Multicenter Effort to Shed Light into Brain Physiology
Birgit Frauscher, MD, PhD

1:30pm Normal Intracranial EEG Variants of the Human Hippocampus
Vasileios Kokkinos, PhD

The Role of Neurophysiology in the Evaluation of Patients with Epilepsy and Low Grade Gliomas
Session Co-Directors: Adriana Tanner, MD, FAES and Luis-Carlos Mayor, MD, FACNS

Learning Objectives:
At the conclusion of this activity, the learner will be able to:
1. Discuss the presurgical evaluation of patients with epilepsy and low grade gliomas.
2. Discuss the indications for invasive evaluation in patients with epilepsy and low grade gliomas.
3. Discuss intraoperative techniques and their pros and cons in patients with epilepsy and low grade gliomas.

12:30pm The Non-Invasive Evaluation of Patients with Epilepsy and Low Grade Gliomas
Juan Ochoa, MD, FACNS

12:55pm The Invasive Evaluation in Patients with Epilepsy in the Setting of Low Grade Gliomas
Julia Miró-Lladó, MD

1:20pm Low Grade Gliomas and Epilepsy: The Role of the Neurophysiologist in the Operating Room
Adriana Tanner, MD, FAES

1:45pm Discussion

2:00 – 2:30pm BREAK

2:30 – 4:00pm CONCURRENT SESSIONS

Challenging EMG Cases: Solving the Puzzle
Session Director: Ruple Laughlin, MD, FACNS

Learning Objectives:
At the conclusion of this activity, the learner will be able to:
1. Define nerve conduction features distinguishing a demyelinating from axonal neuropathy.
2. Identify electrodiagnostic techniques to assess and localize ulnar neuropathy.
3. Formulate a step-wise approach in the EDX evaluation of weakness.

2:30pm Challenging EMG Cases
Ruple Laughlin, MD, FACNS

3:15pm Challenging EMG Cases
Devon Rubin, MD, FACNS
Annual Meeting Scientific Program

Does EEG-Video Monitoring Still Need to be done in the Inpatient Setting? Hospital vs. Ambulatory EEG-Video
Session Director: Selim Benbadis, MD, FACNS

Learning Objectives:
At the conclusion of this activity, the learner will be able to:
1. Describe the advantages and disadvantages of inpatient EEG-video monitoring.
2. Describe the advantages and disadvantages of ambulatory EEG-video monitoring.
3. Apply the CPT codes appropriately for inpatient and ambulatory EEG-video monitoring.

2:30pm  EEG-Video Monitoring Should Be Performed In The Hospital
Meriem Bensalem-Owen, MD, FACNS

2:50pm  Ambulatory EEG-Video Can Be Just as Good as Inpatient EEG-Video
Selim Benbadis, MD, FACNS

3:10pm  Coding Implications of Inpatient vs. Ambulatory EEG-Video
Marc R. Nuwer, MD, PhD, FACNS

3:30pm  Discussion

Intraoperative Monitoring of Lower Cranial Nerves
Session Co-Directors: Pegah Afra, MD, FACNS and Steve Karceski, MD

Learning Objectives:
At the conclusion of this activity, the learner will be able to:
1. Discuss the surgical anatomy and neurophysiology of lower cranial nerves.
2. Explain the peripheral lower cranial nerve monitoring during head and neck surgeries.
3. Describe the hypoglossal nerve monitoring during placement of hypoglossal stimulator.

2:30pm  The Surgical Anatomy and Neurophysiology of Lower Cranial Nerves
Pegah Afra, MD, FACNS

3:00pm  Intraoperative neuropsychologic monitoring of lower cranial nerves during head and neck surgeries
Joseph Doria, MD

3:30pm  Intraoperative monitoring of lower cranial nerves during placement of hypoglossal stimulator
Oleg Modik, PhD, CNIM

Use of Long-Term Video EEG Monitoring in Low-Income Countries: Challenges and Limitations (Joint ACNS/IFCN-Latin American Chapter Symposium)
Session Co-Directors: Daniel San Juan Orta, MD, MSc, FACNS and Jorge Vidaurre, MD, FACNS, FAES

Learning Objectives:
At the conclusion of this activity, the learner will be able to:
1. Review the state of art of the EEG features of interictal-ictal continuum phenomena in children.
2. Review Key EEG features of the interictal-ictal spectrum in the intensive care unit setting with unique challenges of this specific environment.
3. Discuss characteristics of interictal—ictal continuum in patients with super refractory status and multimodal diagnosis tests.

2:30pm  Can we Implement Long-Term Video EEG Monitoring Programs in Low-Income Countries: Limitations and Possible Solutions
Jorge Vidaurre, MD, FACNS, FAES

3:00pm  Practical Applications of EEG Monitoring in an in a Large Center in Mexico: Are we Modifying Outcomes?
Daniel San Juan Orta, MD, MSc, FACNS

3:30pm  Implementation of ICU Telemetry in Latin America: The Colombian Experience
Luis-Carlos Mayor, MD

LS = livestreamed  OD = On-demand  ES = Spanish language
New Insights Sleep Neurophysiology Providing About Complex Bidirectional Effects in Focal-Onset Epilepsies
Session Director: Madeleine M. Grigg-Damberger, MD, FACNS

Learning Objectives:
At the conclusion of this activity, the learner will be able to:
1. Explain why NREM sleep may be the best sleep/wake state to identify the epileptogenic zone for epilepsy surgery evaluations using interictal stereo-EEG.
2. Discuss how recording stereo-EEG and comprehensive respiratory polysomnography shows respiratory events accompany the majority of seizures in the majority of patients with focal-onset epilepsy undergoing epilepsy surgery evaluation.
3. Explain why half of adults with focal-onset epilepsy show pathologic objective sleepiness on the Multiple Sleep Latency Test and pathologic impaired wakefulness and attention on the Maintenance of Wakefulness tests.

2:30pm  Objective Pathological Sleepiness and Difficulty Staying Awake and Alert Highly Prevalent in Unselected Adults with Focal-Onset Epilepsies
Madeleine M. Grigg-Damberger, MD, FACNS

2:55pm  Roles of Sleep and Apnea In Sudden Unexpected Death In Epilepsy (SUDEP) Risk.
Nancy Foldvary-Schaefer, DO

3:15pm  Contribution of Sleep to Better Define the Epileptic Focus and Post-Surgical Outcome
Birgit Frauscher, MD, PhD

3:35pm  Discussion

4:00 – 4:30pm BREAK

4:30 – 6:00pm GENERAL SESSION

Session Chair:
4:30pm  Herbert H. Jasper Award Presentation
4:40pm  Herbert H. Jasper Award Lecture: “The Electroencephalogram of the Developing Brain”
Eli M. Mizrahi, MD, FACNS

5:15pm  Pierre Gloor Award Presentation
5:25pm  Pierre Gloor Award Lecture: “Transcranial Stimulation: Which Method for Which Purpose”
Walter Paulus, MD
SUNDAY, JANUARY 30, 2022

8:00 - 9:30am CONCURRENT SESSIONS

Computational Approaches to Epilepsy
Session Co-Directors: Rod C. Scott, MD, PhD and Giridhar Kalamangalam, MD, DPhil, FACNS

Learning Objectives:
At the conclusion of this activity, the learner will be able to:
1. Describe the characteristics of a complex adaptive system and to contrast reductionist approaches with complexity approaches to understanding such systems.
2. Define network structures at multiple hierarchical levels and discuss how these structures per se are mechanisms of disease.
3. Explain how networks at multiple hierarchical levels can be manipulated in order to reduce seizure propensity and to improve cognitive outcomes.

8:00am The Promise of Complexity Theory
Matt Mahoney, PhD

8:30am Single Unit Electrophysiology to Study Abnormal Microcircuits in Epilepsy
Rod C. Scott, MD, PhD

9:00am Spatiotemporal Patterns of EEG as Mechanisms in Epilepsy
Giridhar Kalamangalam, MD, DPhil, FACNS

The Role of cEEG, qEEG and Evoked Potentials in Acutely Encephalopathic Children and Neonates: From Seizures to Persistent Vegetative State, and Everything in Between
Session Co-Directors: France Fung, MD and Janette Mailo, MD, PhD

Learning Objectives:
At the conclusion of this activity, the learner will be able to:
1. Describe QEEG trends (trend changes, seizure detection, artifacts) that can be seen in encephalopathic pediatric and neonatal patients in the ICU.
2. Recognize the utility of neurophysiologic and evoked potential techniques in assessment of neonates and children with encephalopathy in pediatric and neonatal ICU.
3. Assess the strengths, weaknesses and optimal timing of various neurophysiological modalities used in the evaluation of critically ill neonates and children.

8:00am Introduction
Shavonne L. Massey, MD

8:15am The Role of Evoked Potential Modalities in Assessment of Cerebral Function in Critically Ill Neonates and Children with Altered Awareness
Janette Mailo, MD, PhD

8:45am EEG/QEEG in the NICU and PICU
Rejean Guerriero, DO

8:45am Discussion

The Post Sub-Specialization Era: Board Certification, Credentialing and Getting Reimbursed
Session Co-Directors: Pegah Afra, MD, FACNS and Matthew Luedke, MD, FACNS

Learning Objectives:
At the conclusion of this activity, the learner will be able to:
1. Explain the difference between ABMS and non-ABMS board examinations in CNP and understand variety of board certifications available for subspecialty of CNP;
2. Explain the credentialing process for clinical neurophysiologists;
3. Discuss the difference between privileges and credentials;

8:00am Board Certification in Clinical Neurophysiology: ABMS, ABPN, ABCN, AANEM, CScN. Who are They and What are Their Roles?
Pegah Afra, MD, FACNS

8:30am Credentialing Process for Clinical Neurophysiologists
Matthew Luedke, MD, FACNS

9:00am Credentialing Process for Neurodiagnostic Technologists
Jaime R. Lopez, MD, FACNS

= livestreamed  OD = On-demand  ES = Spanish language
## Annual Meeting Scientific Program

### 8:30 - 11:30am  Fostering Diversity in Clinical Neurophysiology

**Session Co-Directors:** Sarah E. Schmitt, MD, FACNS and Sasha Alick-Lindstrom, MD  

**Learning Objectives:**  
At the conclusion of this activity, the learner will be able to:  
1. Identify the current issues regarding lack of diversity in leadership in Neurology and Clinical Neurophysiology, and describe the importance of cultural competency in interactions with colleagues and patients.  
2. Describe measures that can be utilized to overcome challenges encountered by minorities and women in career advancement, including strategies for balancing family and career obligation and improving work-life balance.  
3. Increase personal involvement and engagement in ACNS and provide opportunities to shape the future of ACNS as a society that promotes diversity and inclusivity for ALL healthcare professionals in neurophysiology.

The presentations from 8:30 - 9:45am will be live-streamed. The roundtable discussions at 10:00am will be open to in-person attendees only.

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<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Presenter(s)</th>
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<tr>
<td>8:30am</td>
<td>Introduction</td>
<td>Sarah E. Schmitt, MD, FACNS</td>
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<td>8:35am</td>
<td>Equity, Diversity and Inclusion Lessons in Neurology</td>
<td>Ima Ebong, MD</td>
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<td>9:05am</td>
<td>Ethnic Diversity and Disparities in Healthcare</td>
<td>Daniel J. Correa, MD, MS</td>
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<td>9:30am</td>
<td>Closing the Gender Gap: Strategies for Successfully Navigating an Academic Career</td>
<td>Page Pennell, MD</td>
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<td>9:45am</td>
<td>Break</td>
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<td>10:00am</td>
<td><strong>Roundtable Discussions:</strong></td>
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<td><strong>Finding an Appropriate Work-Life Balance</strong></td>
<td>Sasha Alick-Lindstrom, MD</td>
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<td>Hiba A. Haider, MD, FACNS, FAES</td>
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<td><strong>Finding Mentorship and Support Locally and Nationally</strong></td>
<td>Sarah E. Schmitt, MD, FACNS</td>
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<td>Susan T. Herman, MD, FACNS</td>
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<td><strong>Promoting Diversity within Your Institution</strong></td>
<td>Daniel J. Correa, MD, MS</td>
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<td>Ima Ebong, MD</td>
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<td><strong>Obtaining Recognition within Your Professional Society</strong></td>
<td>Suzette LaRoche, MD, FACNS</td>
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<td>Page Pennell, MD</td>
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### 10:00 - 11:30am  CONCURRENT SESSIONS

#### Clinical Neurophysiology of Encephalopathy: Grading, Patterns, and Outcome.

**Session Director:** Aline Herlopian, MD  

**Learning Objectives:**  
At the conclusion of this activity, the learner will be able to:  
1. Discuss the grading system of encephalopathy.  
2. Recognize the different patterns associated with encephalopathy.  
3. Identify various entities with their characteristic encephalopathy patterns and strategize therapeutic interventions that impact clinical outcomes.

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<td>Introduction</td>
<td>Aline Herlopian, MD</td>
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<tr>
<td>10:05am</td>
<td>Grading of Encephalopathy</td>
<td>Brandon Westover, MD, PhD</td>
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<td>10:25am</td>
<td>Ictal-Interictal Continuum and Encephalopathy</td>
<td>Aaron Struck, MD</td>
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<td>10:45am</td>
<td>EEG Findings in Specific Etiologies of Encephalopathy</td>
<td>Aline Herlopian, MD</td>
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<td>11:05am</td>
<td>Interactive Cases</td>
<td>Aline Herlopian, MD</td>
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#### Deep Brain Stimulation (DBS) in Epilepsy

**Session Director:** Gregory Worrell, MD, PhD  

**Learning Objectives:**  
At the conclusion of this activity, the learner will be able to:  
1. Define the historical DBS targets in epilepsy and define the evidence that support these targets.  
2. Describe DBS targets for focal epilepsy and FDA approval of the targets.  
3. List DBS targets in generalized epilepsy and outcome data to support these targets.

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<td>DBS in Generalized Epilepsy</td>
<td>Abdulrahman Alwaki, MD</td>
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<td>10:30am</td>
<td>Choosing The Targets: Historical Overview</td>
<td>Robert Gross, MD, PhD</td>
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<tr>
<td>11:00am</td>
<td>DBS in Focal Epilepsy</td>
<td>Gregory Worrell, MD, PhD</td>
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**Annual Meeting Scientific Program**

**Unique Methods of TceMEPs Acquisition in Complex Cases in Adult and Pediatric Surgical Patients**
Session Director: Bernard A. Cohen, PhD, FASNM, FACNS

**Learning Objectives:**
At the conclusion of this activity, the learner will be able to:
1. Describe LQP-TceMEP stimulating electrode arrangements and corresponding optimal placement site to get a higher density of intensity of stimulation delivered to the scalp.
2. Identify the value LQP-TceMEP-technique play during the surgical procedure using low threshold stimulation compare to conventional stimulation.
3. Conduct LQP-TceMEP-technique during a surgical procedure where patient’s age, lesion location, and preoperative neurologic deficit could have degraded MEPs monitoring feasibility.

- **10:00am** LQP-TceMEP Technique: Historical Background and Current Scientific Research Directions  
  Bernard A. Cohen, PhD, FASNM, FACNS

- **10:30am** Optimizing and Improving Continuous TCEMEP Monitoring by Using Low Threshold Linked Quadri-Polar (LQP)-TceMEP in Adult Surgical Patients  
  Ernesto Lima, MD, CNIM, D.ABNM

- **11:00am** Facilitating Pediatric TceMEP Recordings to Approximate Real Time Surgical Feedback  
  Vizmary J. Montes-Pena, MD, MS

⚠️ = livestreamed  ⏳️ = On-demand  🌴 = Spanish language
Preliminary Program

2022 ACNS Annual Meeting & Courses
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