



**American Society for Stereotactic
and Functional Neurosurgery**



2020 BIENNIAL MEETING

BOSTON, MASSACHUSETTS | JUNE 20-23, 2020



PRELIMINARY PROGRAM

Advance Registration Deadline is May 28, 2020

JOIN US IN BOSTON, MASSACHUSETTS

The American Society for Stereotactic and Functional Neurosurgery is excited to invite you to the ASSFN 2020 Biennial Meeting, held June 20–23, 2020 in Boston, Massachusetts. Functional neurosurgery is rapidly evolving, and this evolution is not only being driven by neurosurgeons, but by engineers, neuroscientists, NIH, DARPA, and industry. To address this complex and growing field, our program this year includes leaders in the diverse arenas influencing our specialty.

Join us as we welcome Honored Guest, Dr. Dennis Spencer, the Harvey and Kate Cushing Professor of Neurosurgery; Chief, Epilepsy Surgery; Director, Epilepsy Fellowship; Director, Pituitary Surgery at Yale University School of Medicine.

We are pleased to partner with the American Epilepsy Society (AES) for the 2020 meeting. To this end, the SPC has created a program that will be of great interest to the entire membership, but with additional featured content specifically focused on epilepsy surgery. Also included in the program are cutting-edge advances in our field across the disciplines of engineering, neuroscience, artificial intelligence, and many more. We invite all of our AES colleagues to attend the meeting!

This year, we are introducing a new meeting format. The Plenary Session will start on Saturday, June 20, followed by the Opening Reception on Saturday night. The Opening Reception provides opportunities to connect with peers while you enjoy delicious hors d'oeuvres and cocktails.

Daily Plenary Sessions explore thought-provoking topics with speakers working on the leading edge of technology. This year's Plenary Session topics are: Neuroscience Frontiers; Neuromodulation; Epilepsy; Pain/Addiction; Movement Disorders; and Future Opportunities.

In addition to the Daily Plenary Sessions, you'll want to check out Parallel Sessions, which allow you to tailor your meeting experience to meet your specific needs. This year's Parallel Session topics are: Insular, Peri-Sylvian, & Extra-Temporal Epilepsy; Pain; Epilepsy Case Discussions; Psychiatric Neurosurgery; Pediatric Epilepsy; Movement Disorders; and Radiosurgery.

Be sure to visit with exhibitors and enjoy a beverage while you view state-of-the art products in the Exhibit Hall.

Plus, don't forget to enjoy all that beautiful Boston, Massachusetts has to offer. Explore diverse neighborhoods, visit civic landmarks along the Black Heritage Trail and Freedom Trail, and see the iconic grounds of Harvard University and Fenway Park. Boston is a treasure trove of Americana!

The ASSFN 2020 Biennial Meeting is an unparalleled opportunity to stay on the leading edge of stereotactic and functional neurosurgery, and collaborate with colleagues and acclaimed faculty from across the globe, all while enjoying the beauty of Boston!

Make your arrangements and register today at cns.org/assfn.

Target Audience

Neurosurgeons, Epileptologists, Neuroscientists, Neuroradiologists, Psychiatrists, Nurses, Biomedical Engineers

MEETING DIRECTORS



Robert Gross, MD
ASSFN President
The Emory Clinic
Atlanta, GA



Emad N. Eskandar, MD
Meeting Chairman
Albert Einstein College of Medicine
Montefiore Medical Center
New York, NY



Sameer A. Sheth, MD, PhD
Scientific Program Chairman
Baylor College of Medicine
Houston, TX



Ellen L. Air, MD, PhD
Scientific Program Committee
Henry Ford Hospital
Detroit, MI



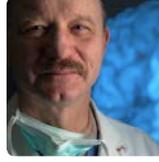
Wael Asaad, MD, PhD
Scientific Program Committee
Neurosurgery Foundation
Providence, RI



Sharona Ben-Haim, MD
Scientific Program Committee
University of California
La Jolla, CA



Andrew J. Cole, MD
Scientific Program Committee
Harvard Medical School
Boston, MA



G. Rees Cosgrove, MD
Scientific Program Committee
Brigham and Women's Hospital
Boston, MA



Casey H. Halpern, MD
Scientific Program Committee
Stanford University
Stanford, CA



Jonathan Miller, MD
Scientific Program Committee
University Hospitals of Cleveland
Case Medical Center
Cleveland, OH



Ashwin Viswanathan, MD
Scientific Program Committee
Baylor College of Medicine
Houston, TX



HONORED GUEST: Dennis Spencer, MD
Harvey and Kate Cushing Professor of Neurosurgery; Chief, Epilepsy Surgery, Director, Epilepsy Fellowship; Director, Pituitary Surgery

Dr. Spencer is the Harvey and Kate Cushing Professor in the Department of Neurosurgery at Yale University School of Medicine. He is a graduate of Washington University School of Medicine and completed his neurosurgical residency at Yale in 1977. He joined the Yale neurosurgery faculty following his residency, and became Chief of neurosurgery in 1987. He has an international reputation in the surgical treatment of neurological diseases causing epilepsy and developed a widely used neocortical sparing surgical approach for patients with temporal lobe epilepsy.

His research has brought together basic scientists and clinicians around a program concerning energetics, glutamate metabolism and the neurobiological study of human epileptogenic tissue. Study techniques have included 7T MRS, C13 intraoperative glucose turnover studies, and in vivo and in vitro electrophysiology and microdialysis, immunohistochemistry, confocal and EM microscopy, and molecular biology. In particular, laboratory discoveries are correlated with the epileptogenic substrate in order to help define human epilepsy pathogenesis and potential therapies. Most recently, he has headed a neurotechnology team developing the next generation of intracranial electrodes, biosensors, wireless transmission and brain cooling to best study and modulate the human network of epileptogenesis.

Dr. Spencer was the recipient of the 1999 American Epilepsy Society's Research Award in clinical Investigation, and the 2006 Society of Neurological Surgeons' Grass Award for Excellence in Research. He is past Chairman of the American Board of Neurological Surgery from 2001–2002, past President of the Society of Neurological Surgeons from 2007–2008, past Vice Chairman of the Neurosurgery Residency Review Committee for Neurosurgery from 1/03–6/05, and the Past President of the American Epilepsy Society from 2007–2008. He served as interim dean of the Yale School of Medicine 2003–2004.

PROGRAM AT-A-GLANCE

SATURDAY, JUNE 20, 2020

7:00 am–7:00 pm
Registration

8:00–11:30 am
SPECIAL COURSE 1
**Stereotactic Techniques
in Epilepsy Surgery**

8:00–11:30 am
SPECIAL COURSE 2
**Advances in Movement
Disorders Surgery**

11:30 am–1:00 pm
LUNCH SESSION
BRAIN Initiative

1:00–3:00 pm
PLENARY SESSION 1
Opening Addresses

3:00–3:30 pm
Beverage Break

3:30–5:30 pm
PARALLEL SESSION 1
**Insular, Peri-Sylvian, &
Extra-Temporal Epilepsy**

PARALLEL SESSION 2
Pain

6:00–8:00 pm
Opening Reception

SUNDAY, JUNE 21, 2020

7:00 am–5:30 pm
Registration

7:00–8:00 am
SUNRISE SESSION
DBS for New Indications

8:00–9:20 am
PLENARY SESSION 2
Pain/Addiction

9:20 am–9:50 am
Beverage Break

9:50 am–12:00 pm
PLENARY SESSION 3
Neuromodulation

12:00–1:30 pm
**Non-CME Sponsored
Lunch Sessions**

1:30–3:00 pm
PARALLEL SESSION 3
**Epilepsy Case
Discussions**

PARALLEL SESSION 4
Psychiatric Neurosurgery

3:00–6:00 pm
Exhibit Hall open

3:00–3:40 pm
**Beverage Break with
Exhibitors**

3:40–5:45 pm
PARALLEL SESSION 5
Pediatric Epilepsy

PARALLEL SESSION 6
Movement Disorders

6:00–8:00 pm
**Non-CME Sponsored
Dinner Sessions**

MONDAY, JUNE 22, 2020

7:00 am–5:30 pm
Registration

7:00–8:00 am
**Non-CME Sponsored
Breakfast Sessions**

7:30 am–5:00 pm
Exhibit Hall open

8:00–9:40 am
PLENARY SESSION 4
Epilepsy

9:40–10:20 am
**Beverage Break with
Exhibitors**

10:20–11:40 am
PLENARY SESSION 5
Neuroscience Frontiers

11:40 am–1:00 pm
**LUNCH AND HONORED
GUEST TALK**

1:00–3:00 pm
PARALLEL SESSION 7
Movement Disorders

PARALLEL SESSION 8
Radiosurgery

3:00–3:30 pm
**Beverage Break with
Exhibitors**

3:00–5:00 pm
**POSTER SESSION WITH
WINE AND CHEESE**

5:00–5:30 pm
**ASSFN BUSINESS
MEETING**

TUESDAY, JUNE 23, 2020

7:00–11:00 am
Registration

7:00–8:00 am
**Non-CME Sponsored
Breakfast Sessions**

7:30–10:00 am
Exhibit Hall open

8:00–9:00 am
PLENARY SESSION 6
Movement Disorders

9:00–9:40 am
**Beverage Break with
Exhibitors**

9:40–11:00 am
PLENARY SESSION 7
Future Opportunities

MEETING AGENDA

**SATURDAY,
JUNE 20, 2020**

8:00–11:30 am

SPECIAL COURSE 1 Stereotactic Techniques in Epilepsy Surgery

\$150 – Residents/Fellows/AES members
\$250 ASSFN Members and Nonmember Physicians

Course Directors: S. Kathleen Bandt, Dario J. Englot, Jay R. Gavvala

Speakers: Saadi Ghatan, Jorge A. Gonzalez-Martinez, Robert E. Gross, Giri Kalamangalam, Guy M. McKhann, Joseph S. Neimat, Chengyuan Wu

Upon completion of this course, participants will be able to:

- ▶ Describe semiology and typical EEG findings of common surgical epilepsy syndromes
- ▶ Discuss implant strategies from both the epileptology and neurosurgical perspectives
- ▶ Create stereotactic implant plans for sEEG procedures using a variety of planning platforms

8:00–8:20 am

Stereotactic Techniques in Epilepsy

Guy M. McKhann

8:20–8:40 am

Concepts in sEEG Surgical Planning

Jorge A. Gonzalez-Martinez

8:40–9:00 am

Concepts in sEEG Data Interpretation

Giri Kalamangalam

9:00–10:00 am

Hands On: sEEG Platforms (20 min per station)

Joseph Samir Neimat, Chengyuan Wu, Jorge A. Gonzalez-Martinez

10:00–10:15 am

Break

10:15–10:35 am

Concepts in LITT Surgical Planning

Robert E. Gross

10:35–10:55 am

Neuropsychological Outcomes after LITT

Daniel Drane

10:55–11:30 am

Hands On: LITT Devices (15 min per station)

Robert E. Gross, Saadi Ghatan

8:00–11:30 am

SPECIAL COURSE 2 Advances in Movement Disorders Surgery

\$150 – Residents/Fellows/AES members
\$250 ASSFN Members and Nonmember Physicians

Course Directors: Zelma HT Kiss, Peter Konrad, Cameron C. McIntyre

Speakers: Christopher Butson, Warren Grill, Bryan Howell, Zelma HT Kiss, Vibhor Krishna, Cameron C. McIntyre, Frank Yeh

Upon completion of this course, participants will be able to:

- ▶ Discuss basic biophysical concepts underlying interactions between electrical stimulation and tissue
- ▶ Apply biophysical models to stereotactic planning for DBS procedures
- ▶ Use 3D holographic platforms to visualize basal ganglia anatomy and plan DBS trajectories

8:00–9:00 am

Part 1: Biophysical Fundamentals of Stimulation

8:00–8:30 am

Biophysics of Electrical Stimulation and Targeted Release of Neurotransmitters

Cameron C. McIntyre

8:30–9:00 am

Strength-duration/Current-distance Relationships and Electrochemistry Limits

Warren Grill

9:00–10:00 am

Part 2: Clinical Stimulation Modeling and Connectomics

9:00–9:15 am

Electrical Field Models

Bryan Howell

9:15–9:30 am

Stimulation Volumes

Christopher Butson

9:30–9:45 am

Tractography

Frank Yeh

9:45–10:00 am

Connectomic DBS

Cameron C. McIntyre

10:00–10:15 am

Break

10:15–11:30 am

Hands On: DBS Visualization and Planning

DBS Planning with BrainLab

Vibhor Krishna

DBS Planning with Stealth

Zelma HT Kiss

HoloLens AR Holographic Visualization

Cameron C. McIntyre

MEETING AGENDA

11:30 am–1:00 pm

LUNCH SESSION: BRAIN Initiative *Complimentary*

Moderators: Syd Cash, R. Mark Richardson

Speakers: Emad N. Eskandar, Kelly D. Foote, Wayne Goodman, Matthew A. Howard, Walter Koroshetz, Adam N. Mamelak, R. Mark Richardson, Sameer A. Sheth

Upon completion of this session, participants will be able to:

- ▶ Describe the goals of the BRAIN Initiative as it pertains to advancing mental health
- ▶ Review how the BRAIN Initiative is utilizing neurosurgery to advance our basic science understanding of human brain function
- ▶ Identify opportunities for clinical-scientists to successfully apply for BRAIN Initiative grants

11:30–11:45 am

BRAIN Initiative Overview

Walter Koroshetz

11:45–11:55 am

Neuronal Mechanisms of Human Episodic Memory

Adam N. Mamelak

11:55 am–12:05 pm

Causal Mapping of Emotion Networks with Concurrent Electrical Stimulation and fMRI

Matthew A. Howard

12:05–12:15 pm

Regulation of Impulsive Behavior

Emad N. Eskandar

12:15–12:25 pm

Mechanisms of Rapid, Flexible Cognitive Control in Human Prefrontal Cortex

Sameer A. Sheth

12:25–12:35 pm

Closing the Loop on Tremor: A Responsive Deep Brain Stimulator for the Treatment of Essential Tremor

Kelly D. Foote

12:35–12:45 pm

Adaptive DBS in Non-Motor Neuropsychiatric Disorders: Regulating Limbic Circuit Imbalance

Wayne Goodman

12:45–1:00 pm

Subthalamic and Corticosubthalamic Coding of Speech Production

R. Mark Richardson

1:00–3:00 pm

PLENARY SESSION 1 Opening Addresses

Moderators: Emad N. Eskandar, Sameer A. Sheth

Speakers: G. Rees Cosgrove, Emad N. Eskandar, Itzhak Fried, William Davis Gaillard, Robert E. Gross, Page Pennell

Upon completion of this session, participants will be able to:

- ▶ Discuss ways in which epilepsy-related research has shaped neuroscience
- ▶ Review historical features of Boston-area functional neurosurgery and how they have influenced modern practice
- ▶ Identify ways for neurology and neurosurgery to work together more efficiently

1:00–1:10 pm

Introduction and Welcome

Emad N. Eskandar

1:10–1:35 pm

Epilepsy as a Force in Neuroscience

Itzhak Fried

1:35–2:00 pm

History of Functional Neurosurgery in Boston

G. Rees Cosgrove

2:00–2:05 pm

Introduction of American Epilepsy Society President

Page Pennell



2:05–2:30 pm

American Epilepsy Society Presidential Address

William Davis Gaillard

2:30–2:35 pm

Introduction of ASSFN President

Emad N. Eskandar



2:35–3:00 pm

ASSFN Presidential Address

Robert E. Gross

3:00–3:30 pm

Beverage Break

ASSFN welcomes American Epilepsy Society members to the 2020 Biennial Meeting!

ASSFN and AES have partnered on development of these Epilepsy Sessions:

Saturday, June 20

Special Course 1: Stereotactic Techniques in Epilepsy Surgery

Parallel Session 1: Insular, Peri-Sylvian, and Extra-Temporal Epilepsy

Sunday, June 21

Parallel Session 3: Epilepsy Case Discussions

Parallel Session 5: Pediatric Epilepsy

Monday, June 22

Plenary Session 4: Epilepsy

MEETING AGENDA

3:30–5:30 pm

PARALLEL SESSION 1 Insular, Peri-Sylvian, and Extra-Temporal Epilepsy

Moderators: Guy M. McKhann, Alison Pack, Paul VanNess
Speakers: Alex Boro, Patrick Chauvel, Philippe Kahane, Jorge A. Gonzalez-Martinez, Stephan Schuele, Nitin Tandon

Upon completion of this session, participants will be able to:

- ▶ Describe the semiological differences between insular, peri-Sylvian, and pseudo-temporal epilepsy
- ▶ Review the role of non-invasive and invasive techniques for developing an understanding of the epileptic focus
- ▶ Review planning strategies for these epilepsy subtypes to improve your ability to plan such cases

3:30–3:50 pm

Historical Perspective of SEEG

Philippe Kahane

3:50–4:10 pm

Insular and Peri-Sylvian Epilepsy: Semiology

Patrick Chauvel

4:10–4:30 pm

Insular & Peri-Sylvian Epilepsy: Imaging Correlates

Alex Boro

4:30–4:50 pm

Insular & Peri-Sylvian Epilepsy: Implant Strategies

Jorge A. Gonzalez-Martinez

4:50–5:10 pm

Temporo-limbic Epilepsy: Semiology

Stephan Schuele

5:10–5:30 pm

Temporo-limbic Epilepsy: Implant Strategies

Nitin Tandon

3:30 p–5:30 pm

PARALLEL SESSION 2 Pain

Moderators: Sharona Ben-Haim, Parag G. Patil
Speakers: Steven M. Falowski, Brian H. Kopell, Ahmed M.T. Raslan, Konstantin V. Slavin

Upon completion of this session, participants will be able to:

- ▶ Describe potential capacities of closed-loop spinal cord stimulation
- ▶ Identify the most common opportunities for ablative pain procedures
- ▶ Review the diagnosis and treatment strategy for trigeminal neuralgia and other facial pain syndromes

3:30–3:50 pm

Closed-loop SCS

Steven M. Falowski

3:50–4:10 pm

Ablative Procedures for Cancer Pain

Brian H. Kopell

4:10–4:30 pm

Trigeminal Neuralgia and Non-TN Facial Pain

Ahmed M.T. Raslan

4:30–4:50 pm

Neuromodulation for Facial Pain

Konstantin V. Slavin

4:50–5:30 pm

Open Papers

6:00 pm–8:00 pm

Opening Reception

Enjoy the start of the Biennial Meeting at the Opening Reception at the Westin Boston Waterfront Hotel. Enjoy the time reconnecting with your colleagues and friends over hors d'oeuvres and cocktails.



MEETING AGENDA

**SUNDAY,
JUNE 21, 2020**

7:00 am–8:00 am

SUNRISE SESSION DBS for New Indications

Moderators: Joshua P. Aronson, Jonathan Miller

Speakers: Jaimie M. Henderson, Andre Machado, Francisco A. Ponce

Upon completion of this session, participants will be able to:

- ▶ Describe brain targets and preliminary results for these new indications
- ▶ Identify strategies for testing new indications, including aspects of trial design and demonstration of target engagement
- ▶ Describe funding strategies for developing trials for new DBS indications

7:00–7:20 am

DBS for Stroke Recovery

Andre Machado

7:20–7:40 am

DBS for Alzheimer's Disease

Francisco A. Ponce

7:40–8:00 am

DBS for Traumatic Brain Injury

Jaimie M. Henderson

8:00 am–9:20 am

PLENARY SESSION 2 Pain/Addiction

Moderators: Casey H. Halpern, Julie G. Pilitsis

Speakers: Emad N. Eskandar, Kamran Khodakhah, Christopher J. Winfree

Upon completion of this session, participants will be able to:

- ▶ Discuss contemporary concerns regarding the national opioid crisis and identify roles that the neurosurgical/neurological community can play in its aftermath
- ▶ Describe a framework for approaching addiction research using computational strategies
- ▶ Discuss the circuitry underlying the pathophysiology of addiction

8:00–8:20 am

The Opioid Crisis

Christopher J. Winfree

8:20–8:40 am

Computational Frameworks for Addiction Research

Emad N. Eskandar

8:40–9:00 am

Addiction Circuitry

Kamran Khodakhah

9:00–9:20 am

Open Papers

9:20 am–9:50 am

Beverage Break

9:50 am–12:00 pm

PLENARY SESSION 3 Neuromodulation

Moderators: Emad N. Eskandar, Konstantin V. Slavin

Speakers: Ed Boyden, Cameron C. McIntyre, Philip A. Starr

Upon completion of this session, participants will be able to:

- ▶ Describe opportunities to combine sEEG and DBS strategies using 3D holographic visualization tools to explore new therapeutic options
- ▶ Identify opportunities to incorporate closed loop DBS in your future practice
- ▶ Describe advances in circuit understanding derived from animal optogenetic studies

9:50–10:20 am

Augmented Reality for sEEG and DBS Planning

Cameron C. McIntyre

10:20–10:50 am

Present and Future of Closed-loop DBS

Philip A. Starr

10:50–11:20 am

Opportunities for Optogenetics in Movement Disorders

Ed Boyden

11:20 am–12:00 pm

Open Papers

12:00–1:30 pm

Lunch Sessions Non-CME Sponsored

1:30–3:00 pm

PARALLEL SESSION 3 Epilepsy Case Discussions

Moderators: Andrew J. Cole, Shlomo Shinnar, Daniel Yoshor

Speakers: William E. Bingaman, Imad Najm, Robert E. Gross, Brian Cabaniss, Ashwini D. Sharan

Upon completion of this session, participants will be able to:

- ▶ Describe different approaches for diagnostic intracranial implantations in temporal lobe epilepsy
- ▶ Incorporate different resective and neuromodulatory strategies in your epilepsy practice
- ▶ Discuss alternative approaches to your usual practice based on case examples from faculty example cases

MEETING AGENDA

1:30–3:00 pm

PARALLEL SESSION 4 Psychiatric Neurosurgery

Moderators: John David Rolston, Tejas Sankar

Speakers: Harith Akram, Darin D. Dougherty, Keith Matthews, Patricio Riva Posse

Upon completion of this session, participants will be able to:

- ▶ Discuss the pros and cons of closed loop DBS in psychiatric neurosurgery
- ▶ Describe uses for connectomic imaging in neurosurgery for OCD and depression
- ▶ Identify opportunities for combining electrical recordings and imaging in psychiatric neurosurgery

1:30–1:45 pm

Adaptive/CL DBS IS Ready for Psychiatry

Darin D. Dougherty

1:45–2:00 pm

Adaptive/CL DBS is NOT Ready for Psychiatry

Keith Matthews

2:00–2:15 pm

Connectomics in Depression and OCD

Harith Akram

2:15–2:30 pm

Imaging and Electrophysiology in Psychiatric Neurosurgery

Patricio Riva Posse

2:30–3:00 pm

Open Papers

3:00–3:40 pm

Beverage Break with Exhibitors

3:40–5:45 pm

PARALLEL SESSION 5 Pediatric Epilepsy

Moderators: Ann-Christine Duhaime, Nico Moshe

Speakers: Daniel Curry, William Davis Gaillard, Jeffrey Ojemann, Elizabeth Thiele

Upon completion of this session, participants will be able to:

- ▶ Describe the pathophysiology, non-surgical, and surgical management strategies for tuberous sclerosis
- ▶ Discuss the use of responsive neurostimulation in pediatric neurosurgery
- ▶ Describe considerations regarding language development and how these factors affect treatment planning in pediatric neurosurgery

3:40–3:55 pm

Modern Management of Tuberous Sclerosis

Elizabeth Thiele

3:55–4:10 pm

Combining sEEG and Ablation for Challenging Multi-focal Epilepsy

Daniel Curry

4:10–4:25 pm

Responsive Neurostimulation in Pediatric Epilepsy

4:25–4:40 pm

Language Development and Pediatric Epilepsy Surgery

William Davis Gaillard

4:40–4:55 pm

Laser Ablation in Pediatric Epilepsy

Jeffrey Ojemann

4:55–5:45 pm

Open Papers

3:40–5:45 pm

PARALLEL SESSION 6 Movement Disorders

Moderators: Aviva Abosch, Ellen L. Air, Philip A. Starr

Speakers: Todd Herrington, R. Mark Richardson, Kelly D. Foote, Michael S. Okun, Jaimie M. Henderson

Upon completion of this session, participants will be able to:

- ▶ Describe different implant strategies for challenging movement disorder cases
- ▶ Incorporate different DBS targeting strategies in your movement disorder practice
- ▶ Discuss alternative approaches to your usual practice based on case examples from faculty example cases

3:40–5:10 pm

Case Discussions by Neurologist/Surgeon Teams

Kelly D. Foote, Jaimie M. Henderson, Todd Herrington, Michael S. Okun, R. Mark Richardson

5:10 pm–5:45 pm

Open Papers

6:00–8:00 pm

Dinner Sessions Non-CME Sponsored



MEETING AGENDA

**MONDAY,
JUNE 22, 2020**

7:00–8:00 am

Breakfast Sessions Non-CME Sponsored

8:00–9:40 am

PLENARY SESSION 4 Epilepsy

Moderator: Sheryl Haut, Steven Ojemann

Speakers: Syd Cash, Barbara Jobst, Dileep Nair, Steve Stufflebeam

Upon completion of this session, participants will be able to:

- ▶ Discuss the latest theories of seizure origin and propagation
- ▶ Discuss incorporation of advanced imaging strategies in epilepsy
- ▶ Provide a balanced view of resective, ablative, and neuromodulatory approaches to temporal lobe epilepsy

8:00–8:20 am

Seizure Origination and Propagation

Syd Cash

8:20–8:40 am

Advances in Epilepsy Imaging

Steve Stufflebeam

8:40–9:00 am

Neuromodulation: What Device for Which Patient

Barbara Jobst

9:00–9:40 am

TLE: Balancing Resection, LITT, and Neuromodulation

Dileep Nair

9:40–10:20 am

Beverage Break with Exhibitors

10:20–11:40 am

PLENARY SESSION 5 Neuroscience Frontiers

Moderators: Wael Assad, Sameer A. Sheth

Speakers: Matt Botvinick, Jaimie M. Henderson, Sameer A. Sheth

Upon completion of this session, participants will be able to:

- ▶ Describe the role of the functional/stereotactic neurosurgeon in basic neuroscience research
- ▶ Identify ethical considerations that must be addressed as functional neurosurgery and corporate big data work together more closely
- ▶ Identify opportunities to improve patient therapies by harnessing computational neuroscience, machine learning, and artificial intelligence

10:20–10:50 am

Interfaces Between Neuroscience, Neurosurgery, and AI

Matt Botvinick

10:50–11:00 am

Questions and Discussion

Sameer A. Sheth, Matt Botvinick

11:00–11:30 am

Brain Machine Interface: Perspectives Spanning Neurosurgery and Industry

Jaimie M. Henderson

11:30–11:40 am

Questions and Discussion

11:40 am–1:00 pm

Lunch and Honored Guest Talk

Evolution of Intracranial Studies for Epilepsy

Dennis Spencer



1:00–3:00 pm

PARALLEL SESSION 7 Movement Disorders

Moderators: Ellen Air, Charles Mikell

Speakers: Paola Arlotta, Kelly D. Foote, Michael Fox, Victoria Gradinaru

Upon completion of this session, participants will be able to:

- ▶ Describe basic science methodology, especially optogenetics, as applied to dissecting basal ganglia circuitry
- ▶ Identify applications for brain organoids in understanding the basis of degenerative diseases
- ▶ Apply network imaging approaches to the study of movement disorders and DBS planning

1:00–1:20 pm

Basal Ganglia Circuit Dissection

Victoria Gradinaru

1:20–1:40 pm

Brain Organoids for Degenerative Disease

Paola Arlotta

1:40–2:00 pm

Network Imaging in Movement Disorders

Michael Fox

2:00–2:20 pm

DBS Using Multiple Target Combinations

Kelly D. Foote

2:20–3:00 pm

Open Papers

MEETING AGENDA

1:00–3:00 pm

PARALLEL SESSION 8 Radiosurgery

Moderators: Douglas Kondziolka, Michael Schulder

Speakers: Mark H. Bilsky, Michael Lim, Shannon MacDonald, Pantaleo Romanelli

Upon completion of this session, participants will be able to:

- ▶ Describe radiosurgical approaches for treating spine oncologic disorders
- ▶ Apply a combination of radiosurgery and immune strategies for improving outcomes
- ▶ Discuss applications of image-guidance in radiosurgery for facial pain

1:00–1:20 pm

Radiosurgery for Epidural Spine Disease

Mark H. Bilsky

1:20–1:40 pm

Radiosurgery in the Age of Checkpoint Inhibitors

Michael Lim

1:40–2:00 pm

Proton Beam Therapy for Pediatric Brain Tumors

Shannon MacDonald

2:00–2:20 pm

Image-Guided Robotic Radiosurgery for Trigeminal Neuralgia

Pantaleo Romanelli

2:20–3:00 pm

Open Papers

3:00–3:30 pm

Beverage Break with Exhibitors

3:00–5:00 pm

Poster Session with Wine and Cheese

Moderator: Zelma HT Kiss

Upon completion of this session, participants will be able to:

- ▶ Describe advances in movement disorder surgery technology
- ▶ Incorporate new strategies in epilepsy surgery into your practice
- ▶ Identify promising new techniques in psychiatric neurosurgery



5:00–5:30 pm

ASSFN Business Meeting

Presiding Officer: Robert E. Gross

TUESDAY,
JUNE 23, 2020

7:00–8:00 am

Breakfast Sessions Non-CME Sponsored

8:00–9:00 am

PLENARY SESSION 6 Movement Disorders

Moderators: Jason L. Gerrard, Alon Y. Mogilner

Speakers: G. Rees Cosgrove, Jason M. Schwalb

Upon completion of this session, participants will be able to:

- ▶ Describe the current state of the art of high-intensity focused ultrasound (HIFU) for treating movement disorders
- ▶ Identify opportunities for future study of HIFU in treating bilateral tremor and Parkinson's disease
- ▶ Discuss pros and cons of a registry-based approach for improving our understanding of DBS outcomes

8:00–8:20 am

Focused Ultrasound: Present and Future

G. Rees Cosgrove

8:20–8:40 am

What We Can Learn from DBS Registries

Jason M. Schwalb

8:40–9:00 am

Open Papers

9:00–9:40 am

Beverage Break with Exhibitors

9:40–11:00 am

PLENARY SESSION 7 Future Opportunities

Moderators: Emad N. Eskandar, Zelma HT Kiss

Speakers: Emad N. Eskandar, Zelma HT Kiss, Joseph S. Neimat, Vikram Rao, Ashwin Viswanathan

Upon completion of this session, participants will be able to:

- ▶ Incorporate intraoperative LFP recordings with segmented leads into your practice to improve DBS programming strategies
- ▶ Discuss advances in high-field MRI imaging and their application to movement disorder surgery
- ▶ Describe ongoing research into future advances in stereotactic and functional neurosurgery

9:40–10:00 am

Award Ceremony

Emad N. Eskandar, Zelma HT Kiss

10:00–10:20 am

Directional Recording and Stimulation

Ashwin Viswanathan

10:20–10:40 am

Network-Based Diagnosis and Therapy in Epilepsy

Vikram Rao

10:40–11:00 am

New Horizons in Stereotactic & Functional Neurosurgery

Joseph Samir Neimat

All speakers and topics are subject to change.

GENERAL INFORMATION

MEETING LOCATION

The Westin Boston Waterfront
425 Summer Street
Boston, MA 02210
(617) 532-4600

PARTNER SOCIETY

The ASSFN is pleased to partner with the American Epilepsy Society for the 2020 Biennial Meeting.

HOTEL RESERVATIONS

To book a reservation at The Westin Boston Waterfront at the group rate of \$289 per night, go to <https://book.passkey.com/go/ASSFN2020> or call 800-937-8461 and reference "2020 ASSFN Biennial Meeting." The group rate is available until May 28, 2020. Subject to availability.

The deadline for making reservations at the ASSFN group rate is **Thursday, May 28, 2020**. Any reservations requested after this date will be based on availability.

Complimentary internet will be provided to all ASSFN attendee guestrooms along with complimentary access to the Fitness Center.

DEPOSIT

Reservations must be guaranteed by a major credit card equal to one night's room and tax.

CHANGES AND CANCELLATIONS

For changes to your hotel reservation, please contact The Westin Boston Waterfront at 800-937-8461. Cancellations must be received 72 hours or more from your arrival date to avoid cancellation fees. Cancellations made within 72 hours of arrival will forfeit one night's room and tax.

MEETING REGISTRATION

Register today using one of these four methods:

Online: <http://www.mcisemi.com/cnsassfn2020>

Fax: 972-349-7715

Phone: 800-931-9543 or 972-349-5539

Mail: ASSFN Registration Center
6100 W. Plano Parkway, Suite 3500
Plano, TX 75093

The ASSFN Registration Center is not responsible for faxes or emails not received due to circumstances beyond their control.

WHAT'S INCLUDED IN THE REGISTRATION FEE?

Medical registration includes the following:

- ▶ Daily Continental Breakfasts
- ▶ Daily Beverage Breaks
- ▶ Daily Plenary and Parallel Sessions
- ▶ Entrance to the Exhibit Hall
- ▶ One ticket to Saturday Opening Reception
- ▶ Admittance to the Poster Session with Wine & Cheese on Monday

REGISTRATION CANCELLATION/ REFUND POLICY

All refund requests must be received in writing by May 28, 2020.

Requests accepted via:

Email: assfn@mcievents.com

Fax: 972-349-7715

Mail: ASSFN Registration Center
6100 W. Plano Parkway, Suite 3500
Plano, TX 75093

Cancellations made before May 28, 2020

Receive a full refund less \$100

processing fee. Pre-meeting course registration fees will be refunded in full until this date.

Cancellations made after May 28, 2018, and no-shows

Absolutely no refunds will be issued after this date for registration and pre-meeting courses regardless of cause.

AMERICANS WITH DISABILITIES ACT/ SPECIAL NEEDS AND REQUESTS

The ASSFN wishes to take the necessary steps to ensure that no individual with a disability is excluded, denied services, segregated or otherwise treated differently than any other individual because of the absence of auxiliary aids and services. Please let us know if, under the ADA, you require special accommodations or services in order to attend the ASSFN Biennial Meeting.

Your requirements should be sent directly to the ASSFN Registration Center at: assfn@mcievents.com, or call 800-931-9543. Please provide any requests at least 30 days prior to the Biennial Meeting to guarantee accommodation.

ACCREDITATION

This activity has been planned and implemented in accordance with the accreditation requirements and policies of the Accreditation Council for Continuing Medical Education (ACCME) through the joint providership of the Congress of Neurological Surgeons and the American Society for Stereotactic and Functional Neurosurgery. The Congress of Neurological Surgeons is accredited by the ACCME to provide continuing medical education for physicians.

AMA CREDIT DESIGNATION STATEMENT

The CNS designates this live activity for a maximum of 27.75 *AMA PRA Category 1 Credits™*. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

CME CREDIT

A maximum of 24.50 *AMA PRA Category 1 Credits™* may be earned for Scientific Sessions only.

Additional CME credits can be earned by attending the optional Saturday half-day courses (3.25 credits).

Physician Assistant/Physician Extender: Attendees will receive credits for attendance at the Plenary/Parallel Sessions and for any optional events attended. Each physician assistant/physician extender should contact his or her individual membership association and certification board to determine the requirements for accepting credits.

All attendees will receive a Certificate of Attendance.

POSTERS

Physicians may claim *AMA PRA Category 1 Credits™* directly from the AMA for preparing a poster presentation, which also includes the published abstracts. Physicians may claim credits on their *AMA PRA* certificate application, or apply directly to the *AMA for an AMA PRA Category 1 Credit™* certificate.

Physicians may claim *AMA PRA Category 2 Credits™* for viewing scientific posters. Physicians should self-claim credit on their *AMA PRA* certificate application for

ADVANCE REGISTRATION FORM

ADVANCE DEADLINE: Thursday, May 28, 2020: All meeting confirmations will be sent via email.

FOUR WAYS TO ADVANCE REGISTER:

- | | |
|--|--|
| 1. ONLINE: (Credit card only)
http://www.mcisemi.com/cnsassfn2020 | 3. FAX: 972-349-7715 |
| 2. PHONE: 800-931-9543 or 972-349-5539 | 4. MAIL: ASSFN Registration Center, 6100 W. Plano Parkway, Suite 3500, Plano, TX 75093 |

REGISTRATION INFORMATION

Please print or type legibly using one form per person. The name and address below will be used for the CME Certificate.

LAST NAME	FIRST NAME	CREDENTIALS	
INSITUTION/HOSPITAL/OFFICE/COMPANY		NATIONAL PROVIDER IDENTIFIER (NPI) NUMBER	
ADDRESS	CITY/STATE/PROVINCE	COUNTRY	ZIP/POSTAL CODE
TELEPHONE (International, include country code)	FAX	EMAIL	

Hotel Reservations: To book a reservation at The Westin Boston Waterfront at the group rate of \$289, go to <https://book.passkey.com/go/ASSFN2020> or call 800-937-8461 and reference "2020 ASSFN Biennial Meeting." The group rate is available until May 28, 2020. Subject to availability.

Deposit: Reservations must be guaranteed by a major credit card equal to one night's room and tax.

Changes and Cancellations: For changes to your hotel reservation, please contact The Westin Boston Waterfront at 800-937-8461. Cancellations must be received 72 hours or more from you arrival date to avoid cancellation fees. Cancellations made within 72 hours of arrival will forfeit one night's room and tax.

REGISTRATION CATEGORY	Received on or Before May 28, 2020	Received After May 28, 2020
PHYSICIANS		
ASSFN Member Physician <i>(including foreign ESSFN/WSSFN members – subject to verification)</i>	<input type="checkbox"/> \$645	<input type="checkbox"/> \$745
Nonmember Physician	<input type="checkbox"/> \$795	<input type="checkbox"/> \$895
Nonmember Physician: Join ASSFN* and register <i>(includes \$285 membership application fee)</i>	<input type="checkbox"/> \$930	<input type="checkbox"/> \$1030
American Epilepsy Society Member / Epileptologists	<input type="checkbox"/> \$295	<input type="checkbox"/> \$345
NON-PHYSICIANS: PhD / RN / NP / PA/ Students		
Graduate Students/Post-doctorates* <i>(Must submit a letter confirming student status.)</i>	<input type="checkbox"/> \$200	<input type="checkbox"/> \$300
ASSFN Associate member, Non-physician <i>(PhD, RN/NP/PA)</i>	<input type="checkbox"/> \$325	<input type="checkbox"/> \$425
Nonmember Associate, Non-physician <i>(PhD, RN/NP/PA)</i>	<input type="checkbox"/> \$475	<input type="checkbox"/> \$575
Nonmember Associate, Non-physician: Join ASSFN* and register <i>(PhD, RN/NP/PA) (includes \$160 membership application fee)</i>	<input type="checkbox"/> \$485	<input type="checkbox"/> \$585
RESIDENTS/FELLOWS		
Resident/Fellow <i>(with letter from Program Director)</i>	<input type="checkbox"/> \$325	<input type="checkbox"/> \$425

SUBTOTAL FOR REGISTRATION SECTION \$ _____

ADDITIONAL COURSES

SPECIAL COURSES – SATURDAY, JUNE 20 – Seating Is Limited

<input type="checkbox"/> Stereotactic Techniques in Epilepsy Surgery	8:00–11:30 am
Residents/Fellows	\$150
ASSFN Members	\$250
Nonmember Physicians	\$250
American Epilepsy Society Members	\$150
<input type="checkbox"/> Advances in Movement Disorders Surgery	8:00–11:30 am
Residents/Fellows	\$150
ASSFN Members	\$250
Nonmember Physicians	\$250
American Epilepsy Society Members	\$150
SUBTOTAL FOR COURSES	
	\$ _____

LUNCH SESSION: SATURDAY, JUNE 20

<input type="checkbox"/> BRAIN Initiative	11:30 am–1:00 pm
	\$0

PAYMENT

REGISTRATION TOTAL	\$ _____
SPECIAL COURSES	\$ _____
REGISTRATION GRAND TOTAL	
	\$ _____

CREDIT CARD AUTHORIZATION: Credit card will be charged immediately

- Visa
 MasterCard
 American Express

CREDIT CARD NUMBER	EXPIRATION DATE	CWV CODE
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NAME OF CARD HOLDER (print)	SIGNATURE (I agree to pay according to the credit card issuer agreement)
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By signing this form, I authorize the ASSFN Registration Center to charge my credit card for the total payment due, acknowledge that the ASSFN registration cancellation policies are in effect and grant the ASSFN the right to use photos taken at the ASSFN Annual Meeting which include me in promotional materials for future meetings. These fees are subject to audit in case of error. The ASSFN Registration Center reserves the right to correct the error and charge the appropriate fees.

- CHECK:** Full amount must accompany your registration form. Please make check payable to the ASSFN Registration Center. Please send your check to: ASSFN Registration Center, 6100 W. Plano Parkway, Suite 3500, Plano, TX 75093. (Any checks received from an overseas bank will be returned. Any checks returned for insufficient funds are subject to additional charges.)

Registration Cancellation Policy: Full registrations refunds, less a \$100 processing fee, will be granted if written requests for cancellation are received by May 28, 2020. No refunds of any kind will be given after this date. Refunds will not be given for no shows. Written requests may be emailed to assfn@mcievents.com, faxed to 972-349-7715, or mailed to ASSFN Registration Center, 6100 W. Plano Parkway, Suite 3500, Plano, TX 75093.

INDUSTRY INTERACTION OPPORTUNITIES

EXHIBIT HALL HOURS

Sunday, June 21: 3:00–6:00 pm
Monday, June 22: 7:30 am–5:00 pm
Tuesday, June 23: 7:30–10:00 am

BEVERAGE BREAKS IN THE EXHIBIT HALL

Sunday, June 21: 3:00–3:40 pm
Monday, June 22: 9:40–10:20 am
Monday, June 22: 3:00–3:30 pm
Tuesday, June 23: 9:00–9:40 am

INDUSTRY SPONSORED ACTIVITIES

Sponsored Breakfast Symposia

Monday, June 22
Tuesday, June 23

Sponsored Lunch Symposia

Sunday, June 21

Sponsored Dinner Symposia

Sunday, June 21

DATES TO REMEMBER

January 9, 2020

Abstract Submission Deadline

May 28, 2020

Group Hotel Rate Deadline and Registration Refund
Deadline

Saturday, June 20, 2020

ASSFN 2020 Biennial Meeting Begins

Tuesday, June 23, 2020

Meeting Adjourns

2018 EXHIBITORS

Abbott
Ad-Tech Medical Instrument Corp
Alpha Omega
ASSFN
Boston Scientific
Brainlab
Codman Specialty Surgical
Elekta
FHC
International Neuromodulation Society (INS)
INSIGHTEC
Mazor Robotics
Medtronic
Monteris Medical
MRI Interventions
North American Neuromodulation Society
(NANS)
NeuroPace
Oxford University Press
Renishaw
Samsung Neurologica
Sceneray
Zimmer Biomet



AES 2020
ANNUAL MEETING
Dec 4 - 8 | Seattle, WA



**American Society for Stereotactic
and Functional Neurosurgery**



2020 BIENNIAL MEETING

BOSTON, MASSACHUSETTS | JUNE 20-23, 2020

PRELIMINARY PROGRAM

American Society for
Stereotactic and Functional Neurosurgery
10 N. Martingale Road, Suite 190
Schaumburg, IL 60173-2294

