

## BREAKFAST FOR SEMINAR PARTICIPANTS

6:45–7:30 AM

## EXHIBIT HOURS

9:00 AM–3:30 PM

## BEVERAGE BREAKS

9:00–9:45 AM  
2:45–3:30 PM

## LUNCH IN THE EXHIBIT HALL

1:15–2:00 PM

### WOMEN IN NEUROSURGERY (WINS)

20th Anniversary Gala Breakfast  
(By Invitation)  
7:30–9:00 AM  
See page 65 for description.

## BREAKFAST SEMINARS

7:30–9:30 AM

Fee: \$100 each, includes breakfast

### 301

#### How I Do It: Acoustic Tumors

##### Moderator:

Frederick G. Barker II, MD, FACS

##### Panelists:

Kalmon D. Post, MD; Craig Andrew Van Der Veer, MD; Harry R. van Loveren, MD

The principles of selecting suitable approaches, techniques and tactics of multimodality treatment of acoustic neuromas will be described.

##### Learning Objectives:

After completing this educational activity, participants should be able to:

- Identify the indications for operative treatment, radiation treatment, drug treatment and observation
- Apply technical details of acoustic tumor surgery
- Discuss how to avoid complications and study the outcome of surgery, radiation treatment and observation

### 302

#### Minimally Invasive Spinal Neurosurgery: Indications, Techniques and Complications

##### Moderator:

Kevin T. Foley, MD

##### Panelists:

Domagoj Coric, MD; Kurt M. Eichholz, MD; Praveen V. Mummaneni, MD; Paul Santiago, MD

This seminar will focus on endoscopic and minimally invasive techniques for cervical, thoracic and lumbar spine surgery. Techniques for decompression and fusion will be discussed.

##### Learning Objectives:

After completing this educational activity, participants should be able to:

- Describe various endoscopic and minimally invasive techniques for spinal surgery
- Discuss the indications, results and potential complications for these techniques

### 303

### R&F N&PE

#### Lumbar Spine Fusion

##### Moderator:

Joan Frances O'Shea, MD

##### Panelists:

Andrew T. Dailey, MD; Iain H. Kalfas, MD; Eric M. Massicotte, MD, MSc; Russ R. Nockels, MD

*This clinic is free to Residents, Fellows and Medical Students.*

This seminar describes and discusses the issues of patient selection, surgical indication and surgical techniques as they pertain to lumbar fusion. A global approach will be provided.

##### Learning Objectives:

After completing this educational activity, participants should be able to:

- Identify the fundamentals of the surgical decision making process
- Discuss factors involved with patient selection for lumbar spine fusion
- Distinguish between the surgical strategies for lumbar spine fusion and their relative indications, as well as their pros and cons

### 304

#### History of Trigeminal Neuralgia

##### Moderator:

Aaron A. Cohen-Gadol, MD

##### Panelists:

Kenneth F. Casey, MD;  
Charles J. Prestigiacomo, MD, FACS

The history of trigeminal neuralgia surgery reflects the history of our discipline in general. Early treatment modalities targeted extracranial and simple intracranial extradural methods (ganglionectomies) to treat the intractable pain. With evolution of intracranial surgery, posterior fossa exploratory operations by Walter Dandy led to the recognition of microvascular compression as the cause of trigeminal neuralgia. Recent advances and refinements have made treatment of trigeminal neuralgia a very satisfying practice.

##### Learning Objectives:

After completing this educational activity, participants should be able to:

- Discuss the importance of techniques during the Pre-Cushing era as the foundation for further later advances in the treatment of trigeminal neuralgia
- Discuss the role of Dandy in revolutionizing the pathophysiology of trigeminal neuralgia
- Discuss the evolution of percutaneous techniques in the treatment of trigeminal neuralgia
- Discuss the evolution of microvascular decompression techniques to date
- Discuss how the lessons from the past guide our future advances in the treatment of trigeminal neuralgia

### 305

#### Cavernous Malformations: Current Controversies in Management

##### Moderator:

Murat Gunel, MD

##### Panelists:

Michael T. Lawton, MD; Gabriele Schackert, MD; R. Michael Scott, MD; Mario Zuccarello, MD

This seminar will use didactic and case based discussion to explain the clinical diagnosis and management of patients with intracranial cavernous malformations.

##### Learning Objectives:

After completing this educational activity, participants should be able to:

- Discuss the presentation, diagnosis and natural history of intracranial cavernous malformations
- Review the expectant, surgical and

radiosurgical treatment options for patients with cavernous malformations

- Review familial cavernous malformation syndromes

### 306

#### Functional Mapping of the Cerebral Cortex: Advantages and Limitations

##### Moderator:

Matthew A. Howard III, MD

##### Panelists:

Mitchel S. Berger, MD, FACS; Guy M. McKhann II, MD; Webster H. Pilcher, MD, PhD

All aspects and methods of functional mapping for neurosurgery will be discussed including removal of brain tumors, vascular lesions and epilepsy for awake and asleep patients.

##### Learning Objectives:

After completing this educational activity, participants should be able to:

- Identify and work within eloquent areas of the brain
- Discuss the technologies available to localize eloquent cortex, how this can enhance the safety of the surgery and what their limitations are

### 307

#### Chiari Malformations: Diagnosis Treatments and Failures

##### Moderator:

Ulrich Batzdorf, MD

##### Panelists:

Richard G. Ellenbogen, MD, FACS; Bermans J. Iskandar, MD; Arnold H. Menezes, MD; Karin M. Muraszko, MD

This seminar will focus on the pathophysiology of Chiari malformations, the indications for treatment, therapeutic options and the basis of their success and failure.

##### Learning Objectives:

After completing this educational activity, participants should be able to:

- Describe the current concepts of the pathophysiology of Chiari malformations
- Recognize the indications for treatment of Chiari malformations
- Discuss the options for treatment of Chiari malformations

### 308

#### Lumbar Stenosis

##### Moderator:

Robert E. Isaacs, MD

##### Panelists:

Edward C. Benzel, MD; Larry T. Khoo, MD; Carl Laurysen, MD; Claudius Thome, MD

This seminar will evaluate short term and long term outcomes of both surgical and non-surgical treatment of lumbar stenosis. It will also evaluate recently developed minimal access treatments for stenosis.

##### Learning Objectives:

After completing this educational activity, participants should be able to:

- Discuss the natural history of spinal stenosis
- Explain the data underlying non-operative therapies for spinal stenosis
- Explain the data underlying conventional operative therapies for spinal stenosis
- Explain the data underlying the newer and less conventional operative therapies for spinal stenosis

### 309

#### Treatment of Complex Regional Pain Syndrome and Hyperhydrosis

##### Moderator:

Christopher J. Winfree, MD

##### Panelists:

Robert M. Levy, MD, PhD; Charles Jess Riedel, MD; Joshua M. Rosenow, MD

This seminar will present current management concepts and emerging state-of-the-art techniques and technology to treat symptomatically mediated disorders that include complex region pain syndrome and hyperhydrosis.

##### Learning Objectives:

After completing this educational activity, participants should be able to:

- Recognize and diagnose complex regional pain syndrome
- Discuss current treatment of hyperhydrosis

### 310

#### Controversies in the Management of Intracerebral Hematomas

##### Moderator:

Neil D. Kitchen, MD, FRCS

##### Panelists:

Neil A. Martin, MD; Alexander David Mendelow, FRCS, PhD; Raj K. Narayan, MD; Mario Zuccarello, MD

The pathophysiology of spontaneous intracerebral hemorrhage will be described, as well as current treatment options. Recent ongoing clinical trials for treatment of ICH patients will be discussed.

##### Learning Objectives:

After completing this educational activity, participants should be able to:

- Discuss the management of intracerebral hemorrhage according to current clinical evidence
- Discuss rationale for current clinical studies
- Discuss evidence based medicine in the management of a patient with intracerebral hemorrhage

### 311

### R&F

#### Advances in Carotid Disease: Surgery vs. Endovascular Therapy

##### Moderator:

Christopher M. Loftus, MD, FACS

##### Panelists:

Felipe C. Albuquerque, MD; William H. Brooks, MD; Robert E. Harbaugh, MD, FACS

*This clinic is free to Residents, Fellows and Medical Students.*

This seminar will explore the risk/benefit ratio for high-risk carotid surgery.

##### Learning Objectives:

After completing this educational activity, participants should be able to:

- Identify high-risk cases in carotid disease
- Recommend appropriate carotid disease cases for surgery
- Discuss the limits of endovascular treatment

### 312

#### Pituitary Tumors

##### Moderator:

Gail L. Rosseau, MD

##### Panelists:

Paolo Cappabianca, MD; Daniel F. Kelly, MD; Jean Regis, MD

Participants will obtain a state-of-the-art update on pituitary tumors, including optimal medical, surgical and adjunctive therapies.

**Learning Objectives:**

After completing this educational activity, participants should be able to:

- Discuss optimal management of prolactinomas
- Describe approach advances in and extensions of transsphenoidal surgery
- Construct appropriate adjunctive treatment algorithms for patients

**313****Biologics for the Spine****Moderator:**

Daniel K. Resnick, MD

**Panelists:**

Robert S. Bray Jr., MD; James S. Harrop, MD; Patrick W. Hitchon, MD; Christopher I. Shaffrey, MD

This seminar will focus on novel cutting edge strategies for spine stabilization, specifically focusing on bone graft extenders and substitutes, absorbable implants, and biological adjuncts for fusion.

**Learning Objectives:**

After completing this educational activity, participants should be able to:

- Discuss the use of electrical stimulation for promotion of fusion
- Describe the current use of absorbable and non-absorbable polymers for spinal stabilization
- Discuss the current use of BMP for spinal arthrodesis

**314****Management of Spinal Axis Trauma****Moderator:**

Gregory R. Trost, MD

**Panelists:**

Sean M. Lew, MD; Nicholas Theodore, MD; Brian Patrick Walsh, MD; Michael Y. Wang, MD

A variety of commonly encountered spine injuries/fractures will be discussed. The controversies and rationale for treatment strategies will be reviewed.

**Learning Objectives:**

After completing this educational activity, participants should be able to:

- Discuss the pertinent issues and alternatives
- Review rationale for various spine trauma treatments

**315****Cervical Disc Disease****Moderator:**

William E. Krauss, MD

**Panelists:**

Ronald I. Apfelbaum, MD; Darryl J. Dirisio, MD; Praveen V. Mummaneni, MD; Thomas A. Sweasey, MD

This seminar will evaluate the surgical management options for herniated cervical discs. The rationale for selection of anterior and posterior approaches and available techniques will be explored.

**Learning Objectives:**

After completing this educational activity, participants should be able to:

- Evaluate the various treatment options for cervical disc disease
- Compare and contrast the different surgical approaches for herniated cervical disc disease
- Discuss treatment options for cervical disc disease

**316****Intracranial Endoscopy****Moderator:**

Michael R. Gaab, MD, PhD

**Panelists:**

Daniel R. Pieper, MD; Thomas Pittman, MD; Mark M. Souweidane, MD; Charles Teo, MD

State-of-the-art of intracranial endoscopic neurosurgery; the seminar covers ventricular surgery, surgery in intracranial tumors and cysts, endoscopic skull base surgery including transnasal and transcranial approaches.

**Learning Objectives:**

After completing this educational activity, participants should be able to:

- Review current state of endoscope technology and handling
- Explain the endoscopic treatment of hydrocephalus and cysts
- Discuss up-to-date endoscopic intracranial tumor surgery
- Describe the state of transnasal and selected transcranial skull base surgery
- Explain complication risks and complication avoidance

**317****Malignant Brain Tumors: State-of-the-Art Treatment****Moderator:**

Joseph M. Piepmeier, MD

**Panelists:**

Ennio Antonio Chiocca, MD, PhD; Francesco DiMeco, MD; Linda M. Liau, MD, PhD; Andrew T. Parsa, MD, PhD

This seminar will discuss new advances in the management of malignant gliomas including gene therapy, convection enhanced drug and immunotherapy. These advances will be discussed in the context of tumors managed by the neurosurgeon.

**Learning Objectives:**

After completing this educational activity, participants should be able to:

- Examine drug delivery using convection based interstitial diffusion
- Review the tumor biology with gene and vaccine therapy
- Examine the role of stem cells in gliomas

**318****Tethered Cord Anomalies****Moderator:**

Joseph H. Piatt Jr., MD

**Panelists:**

Stephen J. Haines, MD; A. K. Mahapatra, MD; Cormac O. Maher, MD; Corey Raffel, MD, PhD; Nathan R. Selden, MD, PhD

The seminar will present the evidentiary basis for the management of tethered spinal cords in childhood. It will highlight contemporary surgical techniques. It will emphasize unanswered questions and areas of controversy, including the concept of 'minimal' tethered cord.

**Learning Objectives:**

After completing this educational activity, participants should be able to:

- Classify the various patterns of spinal dysraphism
- Discuss the risks of progressive neurological disability from spinal cord tethering associated with each pattern of dysraphism
- Select intraoperative and postoperative practices that minimize the risk of surgical complications in the treatment of tethered spinal cord
- Explain the treatment of a child with

minimal imaging findings referred because of dysfunctional voiding

### 319

#### Improving Your Bottom Line

##### Moderator:

James I. Ausman, MD, PhD

##### Panelists:

Saeed Bajwa, MD; Gregory B. Lanford, MD; Troy D. Payner, MD; Webster H. Pilcher, MD, PhD

This seminar will survey the solutions neurosurgeons have made to the constrictive economic environment using practicing neurosurgeons as faculty. Successful examples will cover the small practice to the academic center. This seminar encourages audience participation. It will cover options ranging from entrepreneurial to employment.

##### Learning Objectives:

- After completing this educational activity, participants should be able to:
- Appraise techniques employed by managing partners of large neurosurgical practices to reduce overhead
  - Discuss ways to manage personnel and develop innovative ways to increase the bottom line and run a more productive practice
  - Discuss forces shaping healthcare
  - Explain how to grow a practice in today's and tomorrow's healthcare environment

### 320

#### Spinal Motion Preservation-The Posterior Column Implants

##### Moderator:

M. Samy Abdou, MD

##### Panelists:

Fred H. Geisler, MD, PhD; Luiz Pimenta, MD, PhD; Phillip A. Tibbs, MD

A wide range of treatment strategies and implantable devices are being developed to treat facet disease, spinal stenosis and other manifestations of posterior column disease without fusion. The implantable devices include X-Stop, Dynaxis, TOPS and others. The results of the most recent clinical trials will be presented by investigators involved in these studies.

##### Learning Objectives:

After completing this educational activity, participants should be able to:

- Discuss the normal anatomy of the posterior spinal column, as well as the pathophysiology of degenerative disease
- Discuss the biomechanical basis of non fusion technology
- Explain the design features of both pedicle screw-based and inter-spinous process implants
- Compare and contrast the differing treatment strategies
- Discuss the relevant clinical results of pedicle screw-based stabilization devices and of inter-spinous process implants

### 321

#### R&F

#### Getting the Most Out of Your Residency

##### Moderator:

Lawrence S. Chin, MD, FACS

##### Panelists:

Deborah L. Benzil, MD; M. Sean Grady, MD; Jayant Jagannathan, MD; N. Scott Litofsky, MD

*This clinic is free to Residents, Fellows and Medical Students.*

This seminar will help medical students and beginning residents maximize their experience during residency.

##### Learning Objectives:

After completing this educational activity, participants should be able to:

- Explain the residency application process
- Review ways to maximize residency for professional development
- Explain how to balance professional and personal development
- Develop strategies to maximize financial success during residency
- Discuss the future of neurosurgery

### 322

#### Vertebroplasty and Kyphoplasty: Indications, Controversies and Credentialing

##### Moderator:

Mick J. Perez-Cruet, MD

##### Panelists:

David J. Hart, MD; Andrew J. Ringer, MD; Michael Patrick Steinmetz, MD; Trent L. Tredway, MD

This seminar will focus on vertebroplasty (VP)

and kyphoplasty (KP) techniques, hospital credentialing for performance of these procedures and identifying appropriate patients for each technique.

##### Learning Objectives:

After completing this educational activity, participants should be able to:

- Discuss the indications for VP and KP
- Discuss the rationale for choosing VP or KP for a given patient
- Discuss hospital credentialing and delineation of privileges

### 323

#### N&PE

#### Management of Acute Spinal Cord Injury

##### Moderator:

Michael G. Fehlings, MD, PhD

##### Panelists:

Douglas L. Brockmeyer, MD; Charles Kuntz IV, MD; Michael Patrick Steinmetz, MD; Andrea L. Strayer, MSN, CNRN

This breakfast seminar will provide an up-to-date review of the pathophysiology, medical management, surgical options and recent clinical trials related to spinal cord injury.

##### Learning Objectives:

After completing this educational activity, participants should be able to:

- Discuss clinically relevant aspects of the pathophysiology of spinal cord injury
- Discuss current concepts in the medical management of spinal cord injury
- Explain the role and timing of surgical treatment for acute spinal cord injury
- Discuss recent developments in clinical trials for spinal cord injury
- Integrate current concepts of spinal cord injury into their practice

### 324

#### Cerebral Venous System: Surgical Considerations

##### Moderator:

Albert L. Rhoton Jr., MD

##### Panelists:

Ossama Al-Mefty, MD; Giovanni Broggi, MD; Turker Kilic, MD, PhD; Laligam N. Sekhar, MD, FACS; Chandranath Sen, MD

This seminar will review the anatomy and surgery of the major venous sinuses and veins of the brain and the approaches to the cavernous sinus and jugular foramen.

**Learning Objectives:**

After completing this educational activity, participants should be able to:

- Explain the venous hazards of intracranial surgery
- Recognize operative procedures to avoid injury and complications related to the major venous sinus intracranial veins, the cavernous sinus and jugular foramen
- Discuss the anatomy of the approaches to the cavernous sinus and jugular foramen

**PLENARY SESSION III****9:45 AM–1:00 PM****Moderators:**

Carl B. Heilman, MD;  
Matthew A. Howard III, MD

**900**

9:45–9:59 AM

**Prospective Study of Cancer Control and Patient Reported Outcomes for Spinal Metastases Treated with Stereotactic Body Radiosurgery**

**Authors:**

Eric L. Chang, MD; Almon S. Shiu, PhD; Patricia Grossman, RN; Pamela K. Allen, PhD; Xin Shelley Wang, PhD; Anita Mahajan, MD; David Kornguth, MD; Tito Mendoza, PhD; Charles Cleeland, PhD; Laurence D. Rhines, MD (Houston, TX)

**Discussant:**

Phillip A. Tibbs, MD

**901**

10:00–10:14 AM

**The First 72 Hours of Brain Tissue Oxygenation Predicts Patient Outcome with Traumatic Brain Injury**

**Authors:**

Evert Eriksson, MD; Jeffrey Barletta, PharmD; Bryan Figueroa, MD; Bruce Bonnell, MD; Chris Slosser, MD; Wayne Vanderkolk, MD; Karen McAllen, PharmD; Mickey Ott, MD (Grand Rapids, MI)

**Discussant:**

Alex B. Valadka, MD

**902**

10:15–10:29 AM

**Diffusion Tensor Imaging Based Language Fiber Tract Navigation**

**Authors:**

Christopher Nimsky, MD, PhD; Daniela Kuhnt, MD; Boris Keller von, MD; Daniel

Weigel, MD; Peter Grummich, PhD; Oliver Ganslandt, MD, PhD; Michael Buchfelder, MD, PhD (Germany, Erlangen)

**Discussant:**

Mitchel S. Berger, MD, FACS

**903**

10:30–10:44 AM

**Functional Recovery in the Geriatric Population after Traumatic Spinal Cord Injury: Analysis of a Prospectively Accrued Database of 499 Patients**

**Authors:**

Julio C. Furlan, PhD, MD (Canada, Toronto); Michael B. Bracken, PhD (New Haven, CT); Michael G. Fehlings, MD, PhD (Canada, Toronto)

**Discussant:**

Jack E. Wilberger Jr., MD

**904**

10:45–10:59 AM

**Clinical and Angiographic Outcomes from Indirect Revascularization Surgery for Moyamoya Disease: Review of 63 Procedures**

**Authors:**

Joshua R. Dusick, MD; Nestor R. Gonzalez, MD; Neil A. Martin, MD (Los Angeles, CA)

**Discussant:**

Gary K. Steinberg, MD, PhD

**WFNS PRESENTATION**

11:00–11:14 AM

**Introduction By:**

James R. Bean, MD

**Speaker:**

Jacques Brotchi, MD, PhD

**RHON FAMILY LECTURE**

11:15–11:50 AM

**Introduction By:**

James R. Bean, MD

**Speaker:**

Admiral William Joseph Fallon

**905**

11:51–12:04 AM

**Complication Rates for 9,846 Lumbar Microdiscectomy Procedures. A Report of the Scoliosis Research Society Morbidity and Mortality Committee**

**Authors:**

Justin S. Smith, MD, PhD; Christopher I. Shaffrey, MD; Charles A. Sansur, MD; Kaiming Fu, MD, PhD (Charlottesville, VA); William F.

Donaldson III, MD (Pittsburgh, PA); Joseph H. Perra, MD (Minneapolis, MN); Ram Mudiya, MD, MBA (Fountain Valley, CA); Theodore J. Choma, MD (Columbia, MO); Reinhard D. Zeller, MD (Canada, Toronto); Dennis R. Knapp, Jr, MD (Orlando, FL); Hilali H. Noordeen, FRCS (United Kingdom, London); Sigurd H. Berven, MD (San Francisco, CA); Michael J. Goytan, MD, FRCS; Oheneba Boachie-Adjei, MD (New York, NY)

**Discussant:**

Daniel K. Resnick, MD

**906**

12:05–12:19 PM

**MRI Volumetric Extent of Contrast Enhancement and Resection in Oligodendroglial Tumors**

**Authors:**

Tejas Sankar, MD (Canada, Edmonton); Nina Zobenica, MSc; Lynn Ashby, MD; Adrienne C. Scheck, PhD; William R. Shapiro, MD; Joan Shapiro, PhD (Phoenix, AZ); Jeffrey Wilson, PhD (Tempe, AZ); Kris Smith, MD; Robert F. Spetzler, MD; Mark C. Preul, MD (Phoenix, AZ)

**Discussant:**

Timothy C. Ryken, MD

**HUMANITARIAN AWARD**

12:20–12:25 PM

**Introduction By:**

James R. Bean, MD

**Speaker:**

Armando Basso, MD

**PRESIDENT'S ACKNOWLEDGEMENTS**

12:26–12:35 PM

**Speaker:**

James R. Bean, MD

**LOUISE EISENHARDT LECTURE**

12:36–1:15 PM

**Introduction By:**

James R. Bean, MD

**The Art of the Historical Novel: Making Fiction from Fact**

**Speaker:**

Geraldine Brooks

**502****N&PE**

**Diminishing Professional Liability Exposure: Patient Safety, Error Disclosure, Enhancing Communication**

2:00–5:00 PM

\$100

**Moderator:**

Jamie S. Ullman, MD

**Health Policy and Professional Liability: An Overview**

2:00–2:29 PM

**Speaker:**

John A. Kusske, MD

**Managing Your Liability in Practice**

2:30–2:59 PM

**Speaker:**

Stanley W. Fronczak, MD, JD, FACS

**Avoiding Wrong-Site Surgery and Other Errors**

3:00–3:29 PM

**Speaker:**

Jamie S. Ullman, MD

**Nuts and Bolts of Error Disclosure**

3:30–4:15 PM

**Speaker:**

Susan Marr

**Closed Claims: Lessons Learned**

4:16–5:30 PM

**Speaker:**

Julie Brightwell, RN, BSN, JD

**Learning Objectives:**

After completing this educational activity, participants should be able to:

- Explain how to position neurosurgeons and their patient care teams to meet both day-to-day challenges and regulatory requirements by providing tips that will be useful in all aspects of neurosurgical practice
- Apply the disclosure of errors to patients and their families
- Debate the advantages of disclosure to improve patient communication and reduce incidence of litigation
- Outline patient safety issues and techniques to avoid errors and “near-misses” such as communication errors and wrong-site surgery

**AANS/CNS CEREBROVASCULAR SECTION****2:45–5:30 PM****Moderators:**

Brian L. Hoh, MD; Sean D. Lavine, MD

**907**

2:45–2:51 PM

**Occurrence of In-Stent Stenosis and/or Thrombosis After Enterprise-Assisted Aneurysm Treatment: Midterm Follow-Up of the Interstate Collaboration of Enterprise Stent-Coiling (ICES) Multicenter Registry****Authors:**

Kenneth V. Snyder, MD, PhD; J Mocco, MD, MS (Buffalo, NY); Felipe C. Albuquerque, MD (Phoenix, AZ); Bernard R. Bendok, MD (Chicago, IL); Alan S. Boulos, MD (Albany, NY); Jeffrey S. Carpenter, MD (Morgantown, WV); David J. Fiorella, MD, PhD (Phoenix, AZ); Brian L. Hoh, MD (Gainesville, FL); Jay U. Howington, MD (Savannah, GA); Kenneth M. Liebman, MD (Philadelphia, PA); Ansaar T. Rai, MD (Morgantown, WV); Rafael Rodriguez-Mercado, MD (San Juan, PR); Adnan H. Siddiqui, MD, PhD (Buffalo, NY)

**908**

2:52–2:58 PM

**Blocking Stromal Cell-Derived Factor 1a Blocks Recruitment of Bone Marrow-Derived Progenitor Cells, the Sole Source of Matrix Metalloproteinase-9, in a Murine Sacular Aneurysm Model****Authors:**

Brian L. Hoh, MD; Erin N. Wilmer, BS; Koji Hosaka, PhD; Gregory J. Velat, MD; Marda Jorgensen, BS; Edward W. Scott, PhD (Gainesville, FL)

**909**

2:59–3:05 PM

**Use of Intraventricular Tissue Plasminogen Activator in Patients with Aneurysmal Subarachnoid Hemorrhage****Authors:**

Rohan Ramakrishna, MD; Dinesh Ramanathan, MD; Michael Souter, MD; Nancy Temkin, PhD; Chong Lee, MD; Basavaraj Ghodke, MD; Louis Kim, MD; Laligam Sekhar, MD (Seattle, WA)

**910**

3:06–3:12 PM

**Alteration in Voltage-Dependent Calcium Channels in Dog Basilar Artery After Subarachnoid Hemorrhage****Authors:**

Robert L. Macdonald, MD, PhD; Elena Nikitina, PhD; Babak S. Jahromi, MD, PhD (Canada, Toronto)

**911**

3:13–3:19 PM

**The Effect of ABO Blood Type on the Formation of Cerebral Aneurysms and Arteriovenous Malformations****Authors:**

Christopher A. Sarkiss, BS; David A. McArthur, PhD; Thomas C. Glenn, PhD; Neil A. Martin, MD (Los Angeles, CA)

**DONAGHY LECTURE**

3:20–3:24

**Introduction By:**

Jacques J. Morcos, MD, FRCS

**Recipient:**

Evandro De Oliveira, MD, PhD

**SYMPOSIUM—AVM MANAGEMENT**

3:25–3:49 PM

**Introduction By:**

Jacques J. Morcos, MD, FRCS

**Speaker:**

Evandro de Oliveira, MD, PhD

**Hemorrhagic Disease Symposium****Moderators:**

Saleem I. Abdulrauf, MD; Aman B. Patel, MD

**When Should There be Endovascular Treatment of Aneurysms?**

3:50–3:59 PM

**Speaker:**

Joshua B. Bederson, MD

**When Should Aneurysms Be Clipped?**

4:00–4:09 PM

**Speaker:**

Jacques Moret, MD

**DISCUSSION/CASE PRESENTATION**

4:10–4:14 PM

**Panel:**

Sepideh Amin-Hanjani, MD; Joshua B. Bederson, MD; Jacques J. Morcos, MD, FRCS; Jacques Moret, MD; Fernando Vinuela, MD

**Ischemic Disease Symposium****Moderators:**

Saleem I. Abdulrauf, MD; Aman B. Patel, MD

**Surgical—When Should Intracranial Occlusive Disease Be Treated with Stenting?**

4:15–4:24 PM

**Speaker:**

Sepideh Amin-Hanjani, MD

**Ischemic—When Should Occlusive Disease be Treated with EC-IC Bypass?**

4:25–4:34 PM

**Speaker:**

Fernando Vinuela, MD

**DISCUSSION/CASE PRESENTATION**

4:35–4:37 PM

**Panel:**

Sepideh Amin-Hanjani, MD; Joshua B. Bederson, MD; Jacques J. Morcos, MD, FRCS; Jacques Moret, MD; Fernando Vinuela, MD

**912**

4:38–4:44 PM

**Restoring HOXA5 Expression Inhibits the Growth of Experimental Hemangiomas in the Brain****Authors:**

Rodney Gabriel, BS; Yiqian Zhu, MD; Ileana Cuevas, PhD; Hua Su, MD; Qi Hao, PhD; William Young, MD; Guo-Yuan Yang, MD, PhD; Nancy Boudreau, PhD (San Francisco, CA)

**913**

4:45–4:51 PM

**Elevated C-Reactive Protein is Associated with Increased Incidence of Angiographic Vasospasm in Patients with Aneurysmal Subarachnoid Hemorrhage****Authors:**

Kostas N. Fountas, MD, PhD; Anastasia Tassiou, MD; Konstantinos N. Paterakis, MD, PhD; Eftychia Z. Kapsalaki, MD, PhD (Greece, Larisa); Gregory P. Lee, PhD (Augusta, GA); Arthur A. Grigorian, MD, PhD; Joe S. Robinson, MD, FACS (Macon, GA)

**914**

4:52–4:58 PM

**Intracerebroventricular Administration of Tissue Plasminogen Activator Exacerbates Perihematomal Edema in Patients with Spontaneous Intraparenchymal Hemorrhage with Intraventricular Extension****Authors:**

Andrew F. Ducruet, MD; Zachary L. Hickman, MD; Brad E. Zacharia, MD; Bartosz T. Grobelny, BA; Mason L. Yeh, BA; Kuang-Hua Guo; Hiroki Kimura; E. Sander Connolly Jr., MD (New York, NY)

**915**

4:59–5:05 PM

**Identification of a Volume Occlusion Percentage Threshold Using a Real Time, Intra-Operative Tool (AngioCalc<sup>®</sup>) for the Prediction of Aneurysm Re-canalization after Endovascular Treatment of Intracranial Aneurysms****Authors:**

Zul Kaderali, MD; Hubert Lee, BSC; Thomas Marotta, MD; Walter Montanera, MD; R. Loch Macdonald, MD, PhD; Julian Spears, MD, FRCS (Canada, Toronto)

**916**

5:06–5:12 PM

**Analysis of Extracranial-Intracranial versus Intracranial-Intracranial Bypass for Complex Brain Aneurysms****Authors:**

Nader Sanai, MD; Zsolt Zador, MD; Michael T. Lawton, MD (San Francisco, CA)

**917**

5:13–5:19 PM

**Neuronal and Astrocytic Apoptosis as a Possible Cause for Poor Prognosis after Subarachnoid Hemorrhage****Authors:**

Robert L. Macdonald, MD, PhD; Jinglu Ai, PhD; Ayako Kawashima, MD; Mohammed Sabri (Canada, Toronto)

**918**

5:20–5:26 PM

**Inhibition of Stretch Activated Channels Disrupts Nitric Oxide Mediated Vascular Remodeling****Authors:**

Omar Tanweer, BA; Eleni Metaxa, PhD; Daniel S. Sternberg; Daniel D. Swartz, PhD; John Kolega, PhD; Adnan Siddiqui, MD; Hui Meng, PhD (Buffalo, NY)

**919**

5:27–5:33 PM

**Moyamoya Disease: 10 Years Single Institution Experience of 44 Patients****Author:**

Anil K. Garg, DR (India, New Delhi)

**AANS/CNS SECTION ON STEREOTACTIC AND FUNCTIONAL SURGERY****2:45–5:30 PM****Moderators:**

Aviva Abosch, MD, PhD; Michael G. Kaplitt, MD, PhD

**SYMPOSIUM****NGF Therapy for Alzheimer's Disease**

2:45–2:59 PM

**Speaker:**

Mark H. Tuszynski, MD, PhD

**DBS for Memory Enhancement: Theoretical Basis and Trial Design**

3:00–3:14 PM

**Speaker:**

Alim L. Benabid, MD, PhD

**CSF Shunting for Alzheimers: Clinical Results**

3:15–3:29 PM

**Speaker:**

Gerald D. Silverberg, MD

**QUESTION AND ANSWER**

3:30–3:50 PM

**928**

3:51–4:00 PM

**YNS Medical Student Award****Limbic and Motor Function Comparison of Deep Brain Stimulation of the Zona Incerta and Subthalamic Nucleus****Authors:**

Anthony M. Burrows, BS; Paula D. Ravin, MD; Peter Novak, MD, PhD; Brian Dessureau, PhD; Joan Swearer, PhD; Julie G. Pilitsis, MD, PhD (Worcester, MA)

**929**

4:01–4:10 PM

**Intracranial EEG for Neuronal Oscillatory Contingency During Cognitive Tasks****Authors:**

Kareem A. Zaghloul, MD, PhD; John F. Burke, BS; Joshua Jacobs, PhD; Jeremy Manning, BS; Brian Litt, MD; Michael J. Kahana, PhD; Gordon H. Baltuch, MD, PhD (Philadelphia, PA)

**930**

4:11–4:20 PM

**Defining the Cortical Physiology of Ipsilateral Finger Movements and Neuroprosthetic Implications for Hemispheric Stroke****Authors:**

Eric C. Leuthardt, MD; Kimberly Wisneski, MS; Charles Gaona, MS; Mohit Sharma, MS; Zachary Freudenburg, MS; William Smart, PhD (St. Louis, MO)

**931** 4:21–4:30 PM  
**DBS-Implanted Parkinson's Disease Patients Show Better Olfaction than those Treated Medically**

**Authors:**

Mary Linton B. Peters, MS; Paula Ravin, MD; Peter Novak, MD, PhD; Joan Swearer, PhD; Jean King, PhD; Sathish Kumar Dundamadappa, MD; Julie G. Pilitsis, MD, PhD (Worcester, MA)

**932** 4:31–4:40 PM  
**Intracerebral Microdialysis during Deep Brain Stimulation Surgery for Parkinson's Disease**

**Authors:**

Ephraim Church, BA; Michaux Kilpatrick, MD, PhD; Michael B. Robinson, PhD; Irwin Lucki, PhD; Jurg L. Jaggi, PhD; Gordon H. Baltuch, MD, PhD (Philadelphia, PA)

**933** 4:41–4:50 PM  
**Diffusion Tensor Imaging in Syringomyelia: Assessment of Spinal Somatosensory Systems**

**Authors:**

Fabrice Parker, MD, PhD (Le Kremlin Bicêtre, France); Samar Hatem, MD (Université Catholique de Louvain, Belgium); Nadine Attal, MD, PhD (Inserm, France); Denis Ducreux, MD, PhD (Université Paris XI, Le Kremlin Bicêtre, France); Michèle Gautron (Inserm, France); Leon Plaghki, MD, PhD (Université Catholique de Louvain, Belgium); Adriano Yacubian-Fernandes, MD (Bauru, Brazil); Didier Bouhassira, MD, PhD (Inserm, France)

**934** 4:51–5:00 PM  
**Frameless Robotic Stereotactic Biopsy: Feasibility, Diagnostic Yield and Safety**

**Authors:**

Tarek A. Radwan, MD; Atman Desai, MD; David W. Roberts, MD (Lebanon, NH)

**935** 5:01–5:10 PM  
**Surgical Repositioning of Misplaced STN DBS Electrodes in Parkinson's Disease: Locations of Effective and Ineffective Leads**

**Authors:**

Robert M. Richardson, MD, PhD; Jill L.

Ostrem, MD; Philip A. Starr, MD, PhD (San Francisco, CA)

**936** 5:11–5:20 PM  
**Comparison of Two Resective Strategies in Patients with Focal Epilepsy Associated with Cavernous Angiomas**

**Authors:**

Rebecca O'Dwyer, MD; Jorge Gonzalez-Martinez, MD, PhD; Andreas V. Alexopoulos, MD, MPH; Sean Nagel, MD; Tsu Lee Chen, MD; Imad M. Najm, MD; William Bingaman, MD (Cleveland, OH)

**QUESTION AND ANSWER**

5:21–5:30 PM

**AANS/CNS SECTION ON NEUROTRAUMA**  
**2:45–5:30 PM**

**Moderators:**

Geoff Manley, MD, PhD; David O'Konkwo, MD, PhD

**TBD**

2:45–3:00 PM

**Codman 2009 Recipient Presentation**

3:01–3:15 PM

**Recipient:**

TBD

**938** 3:16–3:30 PM  
**Synthes Resident Spine Award Using Hyaluronic Acid as a Scaffold to Promote Spinal Cord Regeneration**

**Authors:**

Martin Mortazavi MD; Doris Hom PhD; Nikolay Martirosyan, MD; Sergey Kushchayev, MD; Xukui Wang, PhD; Ketan Verma, MS; Nicholas Theodore, MD (Phoenix AZ); Volker KH Sonntag, MD; Alyssa Panitch, PhD (West Lafayette, IN); Mark C. Preul, MD (Phoenix, AZ)

**939** 3:31–3:45 PM  
**Synthes Resident Craniofacial Award Aquaporin-4 Protects Against Post-Traumatic Epilepsy by Promoting Astrocytic Glial Scar Formation in Mice**

**Authors:**

Daniel C. Lu, MD, PhD; Zsolt Zador, MD; Geoffrey T. Manley, MD, PhD (San Francisco, CA)

**940** 3:46–4:00 PM  
**Cerebral Glucose Measurements Reflect Alternative Metabolic Pathways Following Traumatic Brain Injury**

**Authors:**

Thomas C. Glenn, PhD; Daniel Hirt, BS; Jon Berg; Paul Vespa, MD; Neil A. Martin, MD (Los Angeles, CA)

**941** 4:01–4:15 PM  
**A Non-Invasive Intracranial Pressure Monitor Utilizing Modified Brainstem Auditory Responses**

**Authors:**

James L. Stone, MD, FACS; Ben Z. Roitberg, MD; Mateo Calderone-Arnulphi, MD; Sebastian Herrera, MD; Troy Munson, MD; Obina Emechebe-Kennedy, MD, PharmD; Venketesh Aiyagari, MD; Sean Ruland, DO (Chicago, IL)

**SPECIAL SYMPOSIUM: "CURRENT CLINICAL TRIALS IN NEUROTRAUMA"**

**Current Active Clinical Trials in Traumatic Brain Injury**

4:16–4:35 PM

**Panel Debate: Should we bother with drug trials in TBI?**

4:36–4:50 PM

**Current Active Clinical Trials in Spinal Cord Injury**

4:51–5:15 PM

**Panel Debate: Timing of Surgical Decompression after Cervical Spinal Cord Injury**

5:16–5:30 PM

**AANS/CNS SECTION ON SPINE**  
**2:45–5:30 PM**

**SYMPOSIUM: SPINE SURGERY IN THE CHALLENGING PATIENT**

**Moderators:**

Charles Kuntz IV, MD; Christopher I. Shaffrey, MD

**Craniovertebral Trauma**

2:45–3:01 PM

**Speaker:**

Curtis A. Dickman, MD

**Morbid Obesity**

3:02–3:18 PM

**Speaker:**

Daniel K. Resnick, MD

**Advanced Age and Osteoporosis**

3:19–3:35 PM

**Speaker:**

Edward C. Benzel, MD

**Spinal Column Infections**

3:36–3:53 PM

**Speaker:**

Praveen V. Mummaneni, MD

**Metastatic Disease**

3:54–4:10 PM

**Speaker:**

Timothy C. Ryken, MD

**Abstract Moderators:**

Charles Kuntz IV, MD;

Christopher I. Shaffrey, MD

**920**

4:11–4:20 PM

**Surgical Treatment is Effective for Cervical Spondylotic Myelopathy: One Year Outcomes of a Multi-Center Prospective Study, with Independent Assessment, in 294 Patients**

**Authors:**

Michael G. Fehlings, MD, PhD (Canada, Toronto); Branko Kopjar, MD, PhD (Seattle, WA); Paul Arnold, MD (Kansas City, KS); Tim Yoon, MD (Atlanta, GA); Alexander Vaccaro, MD, PhD (Philadelphia, PA); Darrel Brodke, MD (Salt Lake City, UT); Jens Chapman, MD (Seattle, WA); Christopher Shaffrey, MD (Charlottesville, VA); Michael Janssen, DO (Denver, CO); Rick Sasso, MD (Indianapolis, IN); Eric Massicotte, MD (Canada, Toronto)

**921**

4:21–4:30 PM

**2-Level Cervical Disc Arthroplasty: One-Year Clinical Results from 6 Centers in a Prospective Randomized IDE Trial**

**Author:**

Todd H. Lanman, MD, FACS (Beverly Hills, CA)

**922**

4:31–4:40 PM

**The Total Facet Arthroplasty System® (TFAS®) in the Treatment of Spinal Stenosis: Worldwide Experience with Longest Follow-Up of 36 Months**

**Authors:**

Khalid A. Sethi, MD (Johnson City, NY);

Antonio Castellvi, MD (Tampa, FL); Scott Webb, DO (Clearwater, FL); Courtney Brown, MD (Golden, CO); Barton L. Sachs, MD (Plano, TX); Charles Wingo, MD (Tallahassee, FL); Michael Halperin, MD (Norwich, CT); David Wiles, MD (Johnson City, TN); Guillermo Bajares, MD; Alejandro Perez-Oliva, MD (Venezuela, Caracas); Radu Prejbeanu, MD, PhD; Ioan Branea, MD, PhD (Romania, Timisoara)

**923**

4:41–4:50 PM

**A Modified Charlson Index as a Predictor of Pseudoarthrosis and Poor Clinical Outcomes Following Long-Segment Posterior Thoracolumbar Fusions**

**Authors:**

Kasandra Dassoulas, BS; Jay Jagannathan, MD; Toomas Anton, MD; Charles A. Sansur, MD; Christopher I. Shaffrey, MD (Charlottesville, VA)

**924**

4:51–5:00 PM

**Reliability of Digital Cervical Alignment Measurements in Patients with Cervical Myelopathy**

**Authors:**

Michael P. Steinmetz, MD; Chris Iannotti, MD, PhD; David Gwinn, MD (Cleveland, OH)

**925**

5:01–5:10 PM

**Selective Cannabinoid CB2 Receptor Activation Promotes Motor and Autonomic Function Recovery Following Spinal Cord Injury**

**Authors:**

Joshua E. Heller, MD; Ming Zhang, MD, PhD; Hongbo Li, MD; Darric E. Baty, MD; Martin W. Adler, PhD; Doina Ganea, PhD; Christopher M. Loftus, MD, FACS; Jack I. Jallo, MD, PhD; Ronald F. Tuma, PhD (Philadelphia, PA)

**926**

5:11–5:20 PM

**Long-Term Clinical and Radiographic Outcomes Following Single-Level Posterior Cervical Foraminotomy: A Single-Center Study with Minimum 5-Years Follow-Up**

**Authors:**

Jayant Jagannathan, MD; Christopher I. Shaffrey, MD; John A. Jane Sr., MD, PhD (Charlottesville, VA)

**927**

5:21–5:30 PM

**Inflammatory Activation of Degenerative Human Disc Cells by Lymphocyte Product Interleukin-17**

**Authors:**

Mohammed F. Shamji, MD, PhD (Canada, Ottawa); Antonia Helbling; Jun Chen, PhD; Liufang Jing, MSc; Robert E. Isaacs, MD; Christopher R. Brown, MD; William J. Richardson, MD; Lori A. Setton, PhD (Durham, NC)

**AANS/CNS SECTION ON TUMORS II  
2:45–5:30 PM**

**Moderators:**

Manish K. Aghi, MD;

Ennio Antonio Chiocca, MD, PhD

**SYMPOSIUM: CLINICAL AND SCIENTIFIC ADVANCES IN ONCOLYTIC VIRUSES IN THE TREATMENT OF GLIOBLASTOMA**

2:45–2:50 PM

**Introduction By:**

Manish K. Aghi, MD

**Clinical Results with Replicating Adenovirus, a DNA Virus**

2:51–3:05 PM

**Speaker:**

Frederick F. Lang Jr., MD

**Clinical Results with Herpes Virus, a DNA Virus and Convection-Enhanced Delivery of Reovirus and RNA Virus**

3:06–3:20 PM

**Speaker:**

James M. Markert Jr., MD

**Clinical Results with Measles Virus, an RNA Virus**

3:21–3:35 PM

**Speaker:**

Eva Galanis, MD

**Panel Discussion and Wrap Up**

3:36–3:50 PM

Ennio Antonio Chiocca, MD, PhD

942 3:51–4:00 PM

**Preuss Award**  
**Human Bone Marrow-Derived Mesenchymal Stem Cells for Systemic Delivery of Oncolytic Adenovirus Delta-24-RGD to Gliomas**

**Author:**

Raymund L. Yong, MD, MS (Canada, Vancouver)

943 4:01–4:10 PM

**Embryonic Stem Cell (ESC)-Derived Astrocytes Expressing Melanoma Differentiation Associated Gene-7 (mda-7/IL-24) Selectively Induce Growth Suppression, Apoptosis, and Radio-Sensitization in Malignant Gliomas**

**Authors:**

Isabelle M. Germano, MD; Mahmud Uzzaman, MD; Luni Emdad, MD, PhD (New York, NY)

944 4:11–4:20 PM

**Synthes Skull Base Award**  
**The Influence of Age at Diagnosis on the Histological Grading of Meningiomas**

**Authors:**

Jae Sung Park, MD; Burak Sade, MD; Joung Lee, MD (Cleveland, OH)

945 4:21–4:30 PM

**BrainLAB Community Neurosurgery Award**  
**Long-Term Follow-Up, Results and Complications of the Middle Fossa Approach for Hearing Preservation in Acoustic Neuromas**

**Authors:**

Eric S. Nussbaum, MD; Jody L. Lowary, CRNP; Leslie A. Nussbaum, MD, PhD (Twin Cities, MN)

946 4:31–4:40 PM

**A Comprehensive Review of Facial Nerve and Hearing Outcomes Following Vestibular Schwannoma Microsurgery**

**Authors:**

Michael Sughrue, MD; Isaac Yang, MD; Derrick Aranda, MD; Andrew T. Parsa, MD, PhD (San Francisco, CA)

948 4:51–5:00 PM

**Morphotype and Autofluorescence Identify Self-Renewing and Tumor-Initiating Glioma Cells**

**Authors:**

Ivan Radovanovic, MD, PhD; Denis Marino; Culbadu Cristina, PhD (Switzerland, Geneva); Hammou Marie-France; Mlynarik Vladimir, PhD (Switzerland, Lausanne); Nicolas de Tribolet, MD; Pierre-Yves Dietrich, MD (Switzerland, Geneva); Rolf Gruetter, MD; Monika Hegi, PhD (Switzerland, Lausanne); Virginie Clament, PhD (Switzerland, Geneva)

949 5:01–5:10 PM

**Transfection of GBM Tumor Stem Cells with Iron Nanoparticles for MRI Tracking: Cell Viability, Differentiation, and Intracellular Localization**

**Authors:**

Aalya H. Fatoo, BA; John A. Boockvar, MD (New York, NY)

950 5:11–5:20 PM

**Glioma Therapy Using an Oncolytic Herpes Simplex Virus Armed with Tumstatin**

**Authors:**

Deva S. Jeyaretna, MD; Hiro Wakimoto, MD, PhD; Jason Buhman, BA; Toshihiko Kuroda, MD, PhD; Samuel Rabkin, PhD; Robert L. Martuza, MD (Boston, MA)

951 5:21–5:30 PM

**Correlation of 1H-Magnetic Resonance Spectroscopy Chemical Shift Imaging (CSI) and C-Methionine Positron Emission Tomography for Hotspot Detection in Diffuse Gliomas**

**Authors:**

Georg Widhalm, MD; Martin Krssak, PhD; Georgi Minchev, MD; Adelheid Woehrer, MD; Wolfgang Dietrich, MD; Thomas Czech, MD, Prof; Susanne Asenbaum, MD, Prof; Knosp Engelbert, MD, Prof; Johannes Hainfellner, MD, Prof; Daniela Prayer, MD, Prof; Stefan Wolfsberger, MD, Prof (Austria, Vienna)

