

# Stereotactic and Functional NEUROSURGERY NEWS



Fall 2008

## AANS/CNS Section on Stereotactic and Functional Neurosurgery and American Society for Stereotactic and Functional Neurosurgery

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## President's Message: State of the Specialty



Philip Starr, MD, PhD

Under the leadership of Mike Schulner, MD, Andres Lozano, MD, Emad Eskandar, MD, and Chris Honey, MD, the recent ASSFN meeting in Vancouver was the most successful yet of this society. Stepping back from the details of the

presentations, the meeting underscored the variety and intellectual vigor of the disciplines that inform functional neurosurgery. We are fortunate to be working at an extraordinary time in our subspecialty. Translation between neuroscience and clinical practice is accelerating in both directions: from laboratory to operating room, and then back again as the results of our surgeries, and the neural signals we record, inform new theories of brain function.

Many specialties have had their "golden age." A golden age is a period when a critical mass of individuals, enjoying a favorable economic and political climate, adopts a set of principals that result in a leap forward in human understanding. That of surgery as a whole began in the late 19th century, with the introduction of asepsis, anesthesia, and the X-ray. Common, lifesaving surgeries such as appendectomy were initiated in that era.

Philosophy and political theory have also known specific times of great advance. During the Golden Age of the Dutch Republic, following the Peace of Westphalia in 1648, Holland was home to the first free printing presses of Western civilization. In the resulting flourishing of philosophical inquiry, Spinoza (*The Ethics*, 1677) argued against the prevailing mind-body dualism, laying the philosophical foundation for a "material" cause of the mind. One consequence of that philosophy was in evidence at ASSFN 2008 in a session that highlighted device-mediated electrical linkages between the reasoning and emotional sides of our minds.

Although a new board of directors and new officers were elected in Vancouver, any member of the ASSFN can get involved in the society. Contributions to this newsletter or to the ASSFN Web site may be sent to the newsletter editor, Dr. Eskandar, or to the webmaster, Paul Larson, MD. On the Web site, we are beginning a new clinical trials section, with information and a sampling of standardized forms that may be of use to clinicians working to document results of some of the more under-investigated neuromodulation procedures. Suggestions for seminar topics at our CNS and AANS section meetings may be sent to any of the officers, or to Aviva Abosch, MD, PhD, or Mike Kaplitt, MD, PhD, the CNS/AANS program committee chairs. It is no surprise that functional neurosurgery is increasingly attractive to those with the most curious minds of medicine, and we wish the ASSFN to be their forum.

### New Officers and Board Members

The membership meeting, which is held during the biennial ASSFN conference in accordance with the ASSFN bylaws, most recently took place in Vancouver. To fill the positions of the outgoing ASSFN board members, five new members were elected out of 12 nominated candidates. These are Aviva Abosch, MD, PhD (Minneapolis, Minn.), Emad Eskandar, MD (Boston, Mass.), Christopher Honey, MD (Vancouver, Canada), Brian Kopell, MD (Milwaukee, Wisc.), and Alon Mogilner, MD (Manhasset, N.Y.). The new members will serve on the board for the next four years. Please join us in congratulating these new board members!

New ASSFN officers elected at the conference are President Philip Starr, MD, PhD, of the University of California San Francisco; Vice-President Ali Rezai, MD, of the Cleveland Clinic; and Secretary-Treasurer Konstantin Slavin, MD, of the University of Illinois at Chicago.

The next biennial ASSFN meeting will be in New York, June 13–16, 2010.

# Record-Setting 2008 ASSFN Meeting in Vancouver

Konstantin Slavin, MD, Chicago, Ill., and Emad Eskandar, MD, Boston, Mass.



Konstantin Slavin



Emad Eskandar

The Biennial Meeting of the American Society for Stereotactic and Functional Neurosurgery was held June 1–4 in Vancouver, Canada. This event attracted a record number of attendees and became a new landmark in the history of our society. There were 379 medical attendees from 30 countries, 78 oral presentations plus 23 invited presentations and 58 scientific posters. The conference took place without concurrent sessions, allowing each participant to attend the entire program and avoid having to choose between several equally interesting sessions.

Themed New Horizons in Functional Neurosurgery, the meeting provided an excellent overview of current developments in all facets of our constantly growing field.

Reflecting increasing experience and interest in the recently reborn field of psychiatric neurosurgery, the session on this topic was probably the best attended of the entire conference! The presentations by psychiatrists and neurosurgeons gave a balanced survey of the three main directions in use of neuromodulation for psychiatric illnesses: deep brain stimulation, cortical stimulation, and vagus nerve stimulation. In addition to more established indications (treatment-resistant depression and obsessive-compulsive disorder), there were presentations on less-explored indications, such as eating disorders (anorexia nervosa and bulimia nervosa) and body dysmorphic disorder, and even on rationale for surgical interventions in schizophrenia.

Surgery for movement disorders remained the most popular subject as was reflected in number of abstract submissions and presentations. Several sessions were dedicated to basic science and clinical reviews provided by renowned experts from Canada and the United States, and the many research and clinical presentations were given by experts from across the globe. We were greatly impressed by the depth of clinical research projects presented at the conference; the information gathered by the investigators will surely enhance our understanding of the mechanisms of Parkinson's disease and other movement disorders and subsequently will affect the ways we will be treating our patients tomorrow.

Epilepsy surgery was a major highlight of the meeting. Prof. Andre Olivier of the Montreal Neurological Institute, the honored guest of the meeting, delivered a superb keynote presentation, "Experiences in Neurosurgery." He reflected on the past and present of epilepsy surgery and shared his unique pioneering approach on use of neuronavigation in epilepsy interventions that revolutionized the entire field. Following this in-depth introduction, the topic was further explored by the clinical updates on depth recordings and responsive neurostimulation in surgical treatment of epilepsy.

Separate sessions were dedicated to surgery for pain, stereotactic radiosurgery, surgery for Tourette's syndrome, neuroprosthetics, intraoperative imaging, surgery for minimally conscious state, and

review of cortical stimulation for variety of indications. Interestingly, both the session on cortical stimulation and the session on pain ended with passionate pleas for prospective randomized studies in the field of neuromodulation and particularly in multiple modalities such as motor cortex stimulation for pain control, which remains widely used but completely unproven. Such studies most likely will need to be funded through collaborative efforts of the ASSFN members since neither device manufacturers nor federal funding authorities have expressed interest in sponsorship.

The poster sessions attracted a lot of attention and sparked lively discussions. As a result of review by a panel of four judges, the award for the best poster went to Dr. Yu and colleagues for "Automated Computer Algorithm Selects Anterior and Posterior Commissure Points Better Than Experienced Neurosurgeons." The award for the best basic science presentation was given to Dr. Libionka and colleagues for their work, "A Central Role for Adenosine in Deep Brain Stimulation," and the award for the best clinical presentation was presented to Dr. Sani and colleagues for "Chronic Stimulation of the Posterior Hypothalamic Region for Cluster Headache: 21-Month Follow-Up Results in Eight Patients."

A better location for the conference could not have been selected; British Columbia in early June is absolutely beautiful. And the social program, which featured the gala reception, complemented the scientific presentations. The tremendous efforts of Meeting Directors Michael Schulder, MD, and Andres Lozano, MD; Scientific Program Chair Emad Eskandar, MD, Local Host Christopher Honey, MD, and the meeting organizer, Martha Tobin, resulted in an amazing celebration of progress in the rapidly changing field of stereotactic and functional neurosurgery.

The conference in Vancouver was the third since the ASSFN switched to the biennial schedule. It appears that the two-year interval between the meetings is appropriate for accumulation of new material and maintenance of interest among presenters and attendees. The next ASSFN meeting is scheduled for June 13–16, 2010, and will take place at the New York Marriott Downtown in Manhattan. We look forward to seeing you there!

## ASSFN Social Reception for Residents and Fellows: Tues., Sept. 23

Our new tradition of holding a social reception for residents and fellows will continue at the fall CNS Annual Meeting. The reception will take place in the Peabody Hotel in Orlando, Florida Ballroom 1, on Tuesday, Sept. 23 from 6:30 to 8:30 p.m.. This is a great opportunity for current and prospective fellows to learn more about functional neurosurgery! Please come and join your current and future colleagues to discuss your successes and challenges. This is a very informal event and, based on the experience of past meetings, the atmosphere is perfect for learning, sharing, establishing connections and making new friends. For more information, please contact Konstantin Slavin, MD, at [kslavin@uic.edu](mailto:kslavin@uic.edu).

# Interview: ASSFN Honored Guest, Professor Andre Olivier

The lecture given by our honored guest, Professor Olivier of Montreal, was one of the highlights of the ASSFN meeting in Vancouver. Later, we asked him to answer some questions about his life and professional career.

## 1: How did you choose to dedicate your professional career to epilepsy surgery?

In reality I did not choose. I had the good fortune of spending a year as chief resident under Dr. Theodore Rasmussen. TR, as he was known, succeeded Wilder Penfield as director of the Montreal Neurological Institute, as chief of neurosurgery and as epilepsy surgeon. It is with him that I learned the basics of investigation of patients with intractable epilepsy and how to operate on the brain. TR had impeccable and strict surgical techniques which you had to learn step by step, the way he did it. You had no choice.

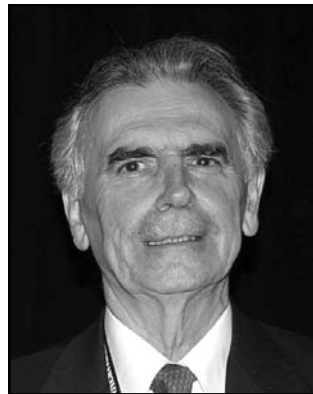
When I finished my training in neurosurgery, I was offered a position at the MNI. In those days you did everything. So I started doing spine, vascular and brain tumor surgery, and stereotaxy with special interest in epilepsy. There were many patients with ambiguous localization of their epileptic focus and we started using stereotactic depth electrodes to better delineate the site of origin of their seizures. This is how I became progressively involved with stereotaxy and surgery of epilepsy.

## 2: You are one of the pioneers in the field. Who was your role model in early years of your professional life?

I don't consider myself a pioneer in the field but rather an innovator, applying newer technical or imaging approaches to old problems. The pioneers are really those who came first. What I tried to do is to maintain the very strong tradition of epilepsy surgery at the MNI and to take full advantage of its concept and infrastructure, that is, working under the same roof with computer engineers and basic scientists.

My first role model in neurosciences was Professor Louis Poirier, the discoverer with Ted Sourkes of the dopaminergic nigrostriatal pathway, one of the most seminal discoveries in neurosciences. Poirier had obtained his PhD in neuroanatomy from University of Michigan under Elizabeth Crosby, that great neuroanatomist who was friend and collaborator to many neurosurgeons. Poirier was a basal ganglia man, and that's how Montreal became something of a basal ganglia city in the 1960s. He delighted in the anatomy of the midbrain tegmentum. I obtained my PhD with him working on the chemoarchitectonics of the monkey's thalamus. While Poirier and Sourkes worked on the nigrostriatal pathway, there were frequent international visitors involved in mapping the brainstem catecholamines with the Falck and Hillarp formaldehyde fluorescence technique. All of this activity was very exciting.

My role model in functional neurosurgery was Gilles Bertrand who really started stereotactic surgery for Parkinson's disease at the MNI and who, with the famous electrophysiologist Herbert Jasper,



carried out seminal research on unit recording in the human thalamus. Bertrand initiated the use of the computer to perform neurosurgical procedures. He was a superb clinician and the spine surgeon at the MNI. It is with him that I learned the basis of stereotactic neurosurgery.

My role model in epilepsy surgery was Theodore Rasmussen. When I started working with him he was the neurosurgeon with the greatest expertise in the field of epilepsy surgery in the world. A former chairman of neurosurgery at the University of Chicago, he had been recalled by Wilder Penfield to take over as director of the MNI and to pursue the epilepsy surgery program. He was extremely well organized. We shared a passion for jazz music. I think I was the only one among all the residents who went through the MNI who knew trumpeter Roy Elridge, a favorite of his from his days in Chicago.

## 3: What were the most memorable events for you in the 1970s, 1980s, 1990s and recently?

In 1970 I participated actively in the process of bringing, for the first time, the computer to the operating room. This was the idea of Gilles Bertrand. He had been impressed by the demonstration at Expo 67 of how an object could be displayed in three dimensions with the help of a computer, and he decided to apply this concept to the brain and thalamus. When the MNI obtained a PDP-12 computer in 1970, Chris Thompson wrote the software, and it was my task to digitize the 200 or so thalamic nuclei according to Hassler from the Schaltenbrand-Bayley's Atlas. I was already familiar with Hassler terminology, having spent some time in his laboratory in Frankfurt in 1967 while completing my doctoral thesis on the anatomy of the monkey thalamus.

The computer work with Gilles Bertrand and Chris Thompson was very exciting. This, I think, was the real beginning of neuronavigation. The computer not only could display brain maps but also determine entry and target points along an optimal trajectory. The extent of the eventual therapeutic lesion could also be displayed and the physiological data archived for later study.

Bringing the Talairach SEEG approach and starting "chronic" stereotactic depth electrode recording for epilepsy at the MNI was another memorable event. Although acute depth electrode recording was carried out on a regular basis during temporal lobe surgery, and in spite of a few attempts in the past, this was really the beginning of intracranial stereotactic recording at the MNI. I introduced this technique in early 1972 shortly after I started on staff. Right from the beginning of our intracranial recording program, we incorporated the automatic computer seizure detection system being developed at the time by engineer John Ives using software written by Chris Thompson. This was the beginning of continuous computer seizure monitoring as we know it today.

Around 1975 and with the help of Gilles Bertrand and Vaclav Tipl, a skillful and invaluable instrument maker, I designed the

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# S & F Highlights at the CNS Annual Meeting

As part of the 2008 CNS Annual Meeting, Sept. 21–25 in Orlando, Fla., the Stereotactic and Functional Neurosurgery Section has planned the following presentations on Monday, Tuesday and Wednesday. On Monday, Sept. 22, a session on stereotactic and functional neurosurgery with presentation of oral papers and selected posters will take place. On Tuesday, Sept. 23, an interactive medical learning session dedicated to stereotactic and functional neurosurgery will be held, and on Wednesday, Sept. 24, a special seminar on DBS for dystonia will be featured. In addition to these sessions, there will be presentations on stereotactic and functional topics during daily morning IML sessions. Complete meeting details are available at [www.cns.org/meetings/2008/index.asp](http://www.cns.org/meetings/2008/index.asp).

## Monday, Sept. 22

**7:05–8:23 am**

IML: Community Learning Session I

**Scientific Breakthroughs That Will Fundamentally Change Our Neurosurgical Practice**

**7:44–7:57 am**

**Chained Lightning: Therapeutic Intervention in Cerebral Function**

*Nicholas M. Boulis*

**2:00–4:00 pm**

**CNS Neurosurgical Forum Section on Stereotactic and Functional Neurosurgery**  
*Moderators: Philip A. Starr; Michael Schulder*

**2:00–2:10 pm**

**Decoding Speech Phonemes From Broca's Area for Neuroprosthetic Application**

*Eric C. Leuthardt; Woosung Kim; Nick Anderson; Kim Wisneski; Dennis Barbour; Gerwin Schalk*

**2:10–2:20 pm**

**Motor Evoked Response Predicts Efficacy of Motor Cortex Stimulation for Motor Recovery Following Ischemic Stroke**

*Robert M. Levy; Todd B. Parrish*

**2:20–2:30 pm**

**Deep Brain Stimulation for Major Depressive Disorder (Resistant to Four or More Treatments): Preliminary Results of a Multicenter Study**

*Abbas F. Sadikot; Helen S. Mayberg; Andres M. Lozano; Sidney H. Kennedy; Peter Giacobbe; Clement Hamani; Guy Debonnel; Theodore Kolivakis; Christopher Honey; Raymond Lam; Andrew Howard*

**2:30–2:40 pm**

**Cortical Stimulation for Tinnitus: Long-Term Follow-Up With PET/rTMS**

*Brian H. Kopell; Manoj Raghavan; Wolfgang Gaggl; Christina Runge-Samuelsen; Justin Hulvershorn; David Soltysik; David Friedland*

**2:40–2:50 pm**

**Chronic Electrical Stimulation of the Dentate Nucleus Enhances Motor Recovery Following Ischemic Strokes in Rats**

*Andre Machado; Kenneth B. Baker; Daniel Schuster; Ali R. Rezaei*

**2:50–3:00 pm**

**Stereotactic and Functional Neurosurgery Resident Award**

**An Implantable, Automated Focal Cerebral-Cooling System Suppresses Epileptic Seizures in Free-Moving, Spontaneously Epileptic Rats**

*Hiroshi Fujioka; Masami Fujii; Hiroyasu Koizumi; Joji Uchiyama; Yuji Kurata; Takashi Saito; Hirochika Imoto; Sadahiro Nomura; Michiyasu Suzuki*

**3:00–3:10 pm**

**Electrocorticographic Guided Resection of Supratentorial Cavernomas; Is It Warranted and Does It Alter Surgical Approach?**

*Jamie Joseph Van Gompel; Jesus Rubio; Fredric B. Meyer*

**3:10–3:20 pm**

**Anatomo-Functional Organization of the Insular Cortex in Epileptic Humans: Study Using Intracerebral Electrical Stimulation**

*Aff Afif; L. Minotti; Alim L. Benabid; P. Kahane; D. Hoffmann*

**3:20–3:30 pm**

**Further Experience With a Stereotactic Near-Infrared Probe for Localization during Functional Neurosurgical Procedures**

*Cole A. Giller; Hanli Liu; Dwight C. German; Dheerendra Kashyap; Richard B. Dewey Jr.*

**3:30–3:40 pm**

**Mapping the Effects of STN DBS: The Spatial Relationship Between Desired and Adverse Stimulation Effects, and Implications for a Multiparameter Localization-Optimization Paradigm**

*Mahesh B. Shenai; Harrison Walker; Stephanie Guthrie; Barton L. Guthrie*

**3:40–3:50 pm**

**Parkinson's Disease Pathology in Migral Grafts 14 Years After Transplantation**

*Thomas B. Freeman; Yaping Chu; Robert Hauser; Warren Olanow; Jeffrey H. Kordower*

**3:50–4:00 pm**

**Cognitive Improvement Following Deep Brain Stimulator Placement for Treatment of Movement Disorders**

*James McInerney; Moksha Ranasinghe; Tiffany Jennings; Elana Farace*

**4:00–5:45 pm**

**Select Abstract Session Section on Stereotactic and Functional Neurosurgery**

*Moderators: Konstantin V. Slavin; Emad N. Eskandar*

## Tuesday, Sept. 23

**7:30–8:48 am**

IML: Community Learning Session II:

**The State of the Evidence What Every Neurosurgeon Needs to Know**

**7:43–7:56 am**

**Functional and Pain Neurosurgery**

*Ali R. Rezaei*

**10:50–11:00 am**

The CNS Resident Award

**Enriched Motor Neuron Populations Derived From BAC-Transgenic Human Embryonic Stem Cells**

*Dimitris G. Placantonakis*

**2:00–3:30 pm**

IML: Clinical Science Session Section on Stereotactic and Functional Neurosurgery

**Deep Brain Stimulation for Parkinson's Disease: Data, Practice and Experience**

*Moderators: Emad N. Eskandar; Kathryn L. Holloway*  
*Technology Moderators: Kelly D. Foote; Paul Larson*  
*Case Presentations; Audience Polls; Current Opinion; Evidence; Practice; Digitally Submitted Questions*

*Expert Discussion: Optimal Stimulation Target for Parkinson's Disease: Globus Pallidus Internus Versus Subthalamic Nucleus, Kim J. Burchiel; Philip A. Starr*

## Wednesday, Sept. 24

**7:30–8:48 am**

IML: Community Learning Session III

**The Impact of Collective Wisdom on Practice**

**8:09–8:22 am**

**The Past is Relevant: Neurosurgical Heritage and Modern Epilepsy Surgery**

*Dennis D. Spencer*

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OBT stereotactic apparatus to reach multiple targets through an orthogonal approach, taking full advantage of the angiogram to determine avascular trajectories. The apparatus was used regularly at the MNI for depth electrode percutaneous implantation and for biopsies until the advent of the frameless technique. It is still used regularly for DBS procedures by Dr. Abbas Sadikot.

All patients with intracranial electrodes underwent stimulation according to a rigid electrophysiological protocol. With Peter Gloor and Felipe Quesney we were able to demonstrate that the experiential phenomena described by Penfield and Perot have their anatomical substratum not in the neocortex but rather in the limbic system, that is, in the amygdala and hippocampus. This work was published in 1982.

The advent of the CT scanner in 1973 was a big step forward in brain imaging. I remember Dr. Penfield's amazement at being able to actually visualize a subdural hematoma and the midline shift when I showed him a CT picture shortly before his death in 1976.

Early in 1984, with the help of John Clarke we replaced standard angiography with digital angiography for all stereotactic procedures. The same year, in collaboration with Terry Peters, the OBT stereotactic apparatus was modified to make it MRI-compatible. Our preliminary experience was presented in Toronto in 1985 at the World Congress of Neurosurgery.

In December 1984 in Paris, I heard Osvaldo Betti speaking on radiosurgical treatment of AVMs using a linear accelerator. I was really impressed by this approach and shortly thereafter I started working with Erwin Podgorsak to develop our program of radiosurgery at McGill based on the concept of dynamic radiosurgery, that is, the simultaneous rotation of the accelerator couch and gantry, which provided very steep fall-off of the radiation outside the target volume.

By the mid-1980s, with the MNI Brain Imaging Center engineers, we were busy fusing MRI and PET images. This work was presented at the memorable Palm Springs conference on epilepsy surgery in February 1986.

In 1987 I organized the ASSFN meeting in Montreal, which highlighted numerous presentations on MRI in stereotaxy and one of the first symposia on radiosurgery. That year I was appointed president of the ASSFN. Working with Phil Gildenberg and Pat Franklin was just great.

Professional memorable events are not only scientific or technical. Some can be highly personal such as the one in 1988 when Catherine Rasmussen, wife of my mentor Ted Rasmussen, suffered a severe subarachnoid hemorrhage from a ruptured giant aneurysm of the ophthalmic artery. Dr. Rasmussen asked me to operate on her. The aneurysm was clipped and to the blessing of the patient, the institution and the surgeon, this turned out to be a full success.

The 1990s were the years of neuronavigation. By March 1992 we had acquired our first neuronavigation system, the ISG Viewing Wand, and started a collaboration with ISG Technologies for FDA approval and improvement of the system. From the very beginning I started using neuronavigation for all aspects of epilepsy surgery including intracranial recording and for all cases of brain tumors. The advent of neuronavigation led to the development of image-guided selective amygdalo-hippocampectomy which became the procedure of choice for treating temporal lobe epilepsy in our center.

Some 10 years ago, with my engineer and neurosurgeon colleagues, we developed the clinical neuronavigation unit composed of two full-time neuronavigation technicians and one engineer. The impact of this unit on every aspect of neurosurgery and on the practice of every neurosurgeon has been major. Most cranial procedures start with the display of a 3-D brain map showing the gyral and vascular anatomy with a double-dose gadolinium MRI. Over the last several years, I have spent considerable effort in further developing a frameless stereotactic apparatus for minimally invasive percutaneous procedures for electrode placement, biopsies and eventual drug delivery. This percutaneous navigation approach, combined with the 3-D brain-vascular display, has significantly facilitated the procedure of intracranial recording in complex epilepsy.

In 1991 I became chairman of neurosurgery at McGill. The chairmanship is something great professionally, but I think something that should come in due time, not too early in a neurosurgical career, as it represents a tremendous amount of time and effort that could be distractive and counterproductive for the young neurosurgeon. It has provided me with great satisfaction in helping my colleagues, both neurosurgeons and basic scientists, to maintain the great tradition of neurosurgery at McGill. It has also been a privilege to help in the training of many residents and fellows who have had an impact in the field of functional neurosurgery and epilepsy surgery.

#### **4: Where do you think epilepsy surgery and stereotactic and functional neurosurgery in general will be in five, 10, or 20 years?**

There will always be a need for surgical treatment of epilepsy. I am convinced more than ever that anticonvulsive medication with its daily and perpetual schedule and its serious side effects is a disease in itself. Our prospective study on the quality of life before and after resective surgery for temporal lobe epilepsy, initiated 13 years ago, was recently published in *Seizure—The European Journal of Epilepsy* and shows the striking improvement in quality of life in patients who became seizure-free, and this with a very low morbidity. It also confirms that when the seizure generator is well identified, results of resective surgery are excellent.

We also just published in the *Journal of Neurosurgery* our results comparing the standard temporal lobe resection and the image-guided stereotactic amygdalo-hippocampectomy, showing that there is no statistically significant difference between the two techniques on the seizure tendency. However it is obviously less invasive and more comfortable for the patient. Why then not continue on the same path and consider even less "invasive" techniques such as endoscopy, stereotactic thermocoagulation or Gamma Knife? The place of radiosurgery remains to be further defined. My involvement in treating epilepsy with radiosurgery is limited to one case. In 1987 we treated a 56-year-old patient with a 15 gray dose to the amygdala and the anterior hippocampus with the idea of delivering a non-necrotic dose that could still alter synaptic transmission. No change in the seizure tendency occurred, and 10 years later the patient was successfully treated by an open image-guided amygdalo-hippocampectomy.

Well-conducted, ongoing studies will clarify the place of radiosurgery in the surgical treatment of epilepsy. Long-term

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studies are needed to evaluate the recurrence rate and the sustained beneficial results.

Our failure to determine the exact site of seizure onset in many cases of suspected focal epilepsy remains the fundamental problem of epilepsy surgery rather than the specific modality of surgical treatment. In the next five-to-10 years we will see further refinement in the search of the epileptic focus and improved ability to localize extra temporal epilepsy as a result of increased MRI resolution, magneto-electroencephalography, MEEG, and EEG-activated functional MRI. However, working hypotheses provided by the above techniques will often need to be confirmed by electrophysiological recording. As witnessed in the past 20 years, improved technology, instead of clarifying a localization problem, has at times created further ambiguity. This is why I sincerely believe that five-to-10 years from now we will still need techniques of direct intracranial recording. As for functional neurosurgery in general, the Vancouver meeting is, I think, indicative of a very bright future with refinement and further impact of DBS on movement disorders and mental diseases.

**5: What would you recommend for those just starting their professional lives in stereotactic and functional neurosurgery and for those still in the process of choosing the field of interest?**

My main recommendation to all young neurosurgeons would be to limit their administrative function and to dedicate themselves to acquiring theoretical and practical knowledge of functional anatomy, to constantly improve their surgical technique and to stick with those in the field who share the same interests. Learn and develop good techniques, not only traditional stereotactic

approaches but also open operative image-guided resective procedures. Find the right people to teach you. It is also important to develop a neurological "culture." Find out which surgeons shared the same interest 25, 50 or 100 years ago and what they discovered. Whenever possible work in a team with basic scientists and computer engineers. Keep an open mind and apply new technology to old problems.

**6: One of the subjects of discussion lately is whether resective surgery for epilepsy will be replaced by neurostimulation, be that vagus nerve, deep brain or cortical targets. What is your opinion on this matter?**

As indicated earlier, resective surgery for epilepsy is here to stay. In my opinion, stimulation will never replace resective surgery, it will complement it. Resective surgery should always remain the preferable approach whenever an epileptogenic lesion is removable without risk to function. It is most important to keep alive the technique of awake craniotomy and intraoperative stimulation and mapping and to further develop the field of neuronavigation with preoperative functional mapping, concentrating on physiological technique of focus identification such as MEG and EEG-activated functional MRI.

When resective surgery is not feasible, and there will be ample indications, neurostimulation will have more and more applications. Epilepsy is the result of activation of networks and neurostimulation interferes with networks. Identifying abnormal networks with DTI tractography, MEG, and EEG-activated functional MRI will clarify the indications and modalities of neurostimulation. Certainly, as was elegantly demonstrated at the Vancouver meeting by Martha Morel, the feasibility of close-loop seizure detection and therapeutic current delivery represents an exciting avenue for the future.

**Upcoming Meetings Calendar**

One of the purposes of this newsletter is to inform all ASSFN members about upcoming meetings and conferences of interest. Meeting organizers are encouraged to send information about upcoming meetings to newsletter editor Emad Eskandar, MD, eskandar@helix.mgh.harvard.edu.

**2008 Congress of Neurological Surgeons (CNS) Annual Meeting**  
Orlando, Fla.  
Sept. 20–25, 2008  
[www.cns.org/meetings/2008/index.asp](http://www.cns.org/meetings/2008/index.asp)

**XVIII Congress of the European Society of Stereotactic and Functional Neurosurgery (ESSFN)**  
Rimini, Italy  
Oct. 5–8, 2008  
[www.essfn2008.csrcongressi.com/](http://www.essfn2008.csrcongressi.com/)

**12th Annual Meeting of North American Neuromodulation Society (NANS)**  
Dec. 4–7, 2008  
Las Vegas, Nev.  
[www.neuromodulation.com](http://www.neuromodulation.com)

**77th Annual Meeting of the American Association of Neurological Surgeons (AANS)**  
San Diego, Calif.  
May 2–7, 2009  
[www.aans.org](http://www.aans.org)

**15th Quadrennial Meeting of the World Society of Stereotactic and Functional Neurosurgery (WSSFN)**  
Toronto, Canada  
May 24–27, 2009  
[www.wssfn.org](http://www.wssfn.org)

**9th Bi-Annual Congress of the International Stereotactic Radiosurgery Society (ISRS)**  
Seoul, South Korea  
June 7–11, 2009  
[www.isrs2009.org](http://www.isrs2009.org)

**XIV International Congress of Neurological Surgery (WFNS)**  
Boston, Mass.  
Aug. 30–Sept. 4, 2009  
[www.wfns.org](http://www.wfns.org)

**9th World Congress of International Neuromodulation Society (INS)**  
Seoul, South Korea  
Sept. 12–18, 2009  
[www.neuromodulation.com](http://www.neuromodulation.com)

**2009 Congress of Neurological Surgeons Annual Meeting**  
New Orleans, La.  
Oct. 24–29, 2009  
[www.cns.org/meetings/2009/index.asp](http://www.cns.org/meetings/2009/index.asp)

**2010 Biennial Meeting of the ASSFN**  
*Save the date!*  
New York, N.Y.  
June 13–16, 2010  
[www.assfn.org/](http://www.assfn.org/)

# Application for New Membership



American Association of Neurological Surgeons



## American Society for Stereotactic and Functional Neurosurgery

Name \_\_\_\_\_

Office Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Country \_\_\_\_\_

Phone \_\_\_\_\_ Fax \_\_\_\_\_ E-mail \_\_\_\_\_

Residency Training Program \_\_\_\_\_ Years: \_\_\_\_\_

Medical School \_\_\_\_\_

Specialty (circle)    Neurosurgery    Neurology    Other: \_\_\_\_\_

AANS Member     Yes     No                      CNS Member     Yes     No

Interests in Stereotactic and Functional Neurosurgery: (please circle)

- Movement Disorders    Pain    Epilepsy    Psychosurgery  
Biomedical Engineering    Tumors    Radiosurgery    Image Guidance

Determine and circle your membership category:

Category	Yearly Fee	Description
Active	\$325	For practicing neurosurgeons in the United States or Canada who have completed residency/fellowship
Resident/Fellow	\$25	One-time fee (not yearly). For neurosurgical trainees currently in residency or fellowship
Senior	Free	For neurosurgeons who are retired and over 65 years old
Associate	\$50	For non-neurosurgeons

The benefits of Active membership include:

- Membership in the AANS/CNS Section on Stereotactic and Functional Neurosurgery
- Membership in the World Society for Stereotactic and Functional Neurosurgery
- Reduced fees for the biennial ASSFN meetings
- Subscription to the journal *Stereotactic and Functional Neurosurgery* (including online access)

The benefits of all other membership categories are:

- Membership in the AANS/CNS Section on Stereotactic and Functional Neurosurgery
- Reduced fees for the biennial ASSFN meetings
- Eligibility to subscribe to the journal *Stereotactic and Functional Neurosurgery* (including online access) at the reduced rate of \$135. If you are joining the ASSFN as a Resident/Fellow, Associate, or Senior member and wish to have the journal subscription, send a check for \$135, payable to AANS, directly to our secretariat at the AANS. Mail to: ASSFN, c/o AANS, 5550 Meadowbrook Drive, Rolling Meadows, IL 60008, and check this box:  
 YES I would like to receive the society journal at the reduced rate.

There are two ways to become an ASSFN member:

- (1) Apply online at [www.MyAANS.org](http://www.MyAANS.org) (for Active member applications only), or (2) mail this application form and a check for the appropriate fee (see table above), payable to ASSFN, to: ASSFN, c/o AANS, 5550 Meadowbrook Drive, Rolling Meadows, IL 60008.

For questions or concerns, contact the current (2008–2010) treasurer, Konstantin Slavin, at [kslavin@uic.edu](mailto:kslavin@uic.edu), or the membership chair, Kelly Foote, at [foote@neurosurgery.ufl.edu](mailto:foote@neurosurgery.ufl.edu).

## ASSFN–AANS/CNS Section on Stereotactic and Functional Neurosurgery

5550 Meadowbrook Drive  
Rolling Meadows, Illinois 60008

### ASSFN Officers and Executive Council

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### CNS Meeting Highlights *continued from page 4*

#### 4:00–5:30 pm

Section on Stereotactic and Functional Neurosurgery Seminar

#### Management of Dystonia: Current Understanding and Treatment

*Moderators: Konstantin V. Slavin; Michael Schulder*

#### 4:00–4:15 pm

#### Medical Approaches to Dystonia

*Michael Okun*

#### 4:15–4:30 pm

#### Overview of Dystonia Surgery

*Kelly D. Foote*

#### 4:30–4:45 pm

#### Globus Pallidus Deep Brain Stimulation for Dystonia

*Ron L. Alterman*

#### 4:45–5:00 pm

#### Subthalamic Deep Brain Stimulation for Dystonia

*Gordon Hirsh Baltuch*

#### 5:00–5:15 pm

#### Deep Brain Stimulation for Focal Dystonia

*Philip A. Starr*

#### 5:15–5:30 pm

#### Interactive Panel/Audience Discussion

### Thursday, Sept. 25

#### 9:00–10:00 am

#### Cases and Coffee with the Masters (Section-Based Breakout Interactive Case Sessions)

*Stereotactic/Functional Discussants:*

*Roy A. Bakay; Robert E. Gross; Aviva Abosch*