

# 2015 Advanced Gamma Knife Course

## Monday, September 14, 2015

7:15 - 8:00 a.m.	Registration and Breakfast
8:00 - 8:15 a.m.	Dr. Mark Shaffrey – Opening Remarks
8:15 - 8:45 a.m.	Dr. Jason Sheehan- History of Stereotactic Radiosurgery
8:45 - 9:00 a.m.	Dr. Edward Nemergut – Monitored Anesthesia for Gamma Knife (GK) Frame Placement
9:00 - 9:30 a.m.	Dr. Steve Newman – Ophthalmological Considerations for Pituitary Patients undergoing Gamma Knife Surgery (GKS)
9:30 - 10:00 a.m.	Break
10:00 - 10:35 a.m.	Dr. Mary Lee Vance – Endocrine Considerations for Cushing's Disease, Nelson's, and non-functioning Adenomas
10:35 - 11:10 a.m.	Dr. Gregory Hong – Endocrine Considerations for Acromegaly and Prolactinomas
11:10 - 11:45 p.m.	Dr. Sugoto Mukherjee– Neuro-Imaging for GKRS of Pituitary Adenomas
11:45 - 12:45 p.m.	Lunch
12:45 - 1:20 p.m.	Dr. John Jane, Jr. -Endoscopic Resection of Pituitary Adenomas versus GKRS
1:20 - 1:55 p.m.	Dr. Edward Oldfield – Transsphenoidal, Microcapsular Resection of Pituitary Adenomas versus GKRS
1:55 - 2:45p.m.	Dr. Jason Sheehan – GKRS for Pituitary Adenomas & Methods to Avoid Damage to the Optic Apparatus
2:45 - 3:15 p.m.	Dr. David Schlesinger – GKRS Dose Planning for Pituitary Tumors
3:15 - 3:30 p.m.	Break
3:30 - 4:00 p.m.	Dr. David Schlesinger, Dr. Jason Sheehan, and Dr. Zhiyuan Xu– Hands-on Dose Planning: <ul style="list-style-type: none"> <li>• Strategy with the Perfexion,</li> <li>• Dynamic beam shaping and shielding</li> <li>• Composite Shots</li> <li>• Discussion of participants cases</li> </ul>
4:00 - 6:00 p.m.	Tour of Monticello (Optional)
6:30 p.m.	Dinner

## Tuesday, September 15, 2015

6:00 - 7:00 a.m.	Registration and Breakfast
7:00 - 8:00 a.m.	Dr. David Schlesinger – Technical Introduction to the Gamma Knife Perfexion <ul style="list-style-type: none"> <li>• Unit Description</li> <li>• Radiation Unit Safety</li> <li>• Treatment Procedures</li> <li>• Emergency Procedures</li> <li>• NRC Regulations</li> </ul>
8:00 - 8:30 a.m.	Dr. Sugoto Mukherjee – Neuro-Imaging of AVM's for GKRS
8:30 - 9:00 a.m.	Dr. Webster Crowley - Embolization of AVMs prior to GKRS
9:00 - 9:30 a.m.	Dr. Kenneth Liu – Surgical Resection versus GKRS of AVM's
9:30 - 10:00 a.m.	Dr. Mark Quigg – GKRS for Epilepsy
10:00 - 10:15 a.m.	Break
10:15 - 11:00 a.m.	Dr. Zhiyuan Xu - GKRS for AVMs <ul style="list-style-type: none"> <li>• Patient selection for GKRS</li> <li>• Adverse Effects</li> <li>• Repeat GKRS</li> <li>• Treatment of Pediatric Cases</li> <li>• Brainstem treat</li> <li>• Treatment of Large AVMs</li> </ul>
11:00- 11:30 a.m.	Roundtable Discussion on GKRS for Vascular Lesions with Drs . Crowley, Liu, Sheehan, and Xu
11:30 - 12:30 p.m.	Lunch
12:30 - 1:00 p.m.	Ms. Sophia Lee Yu and Elfrida Tandar Coding and Reimbursement for the Perfexion
1:00 - 2:00 p.m.	Dr. Jason Sheehan– Indications and Clinical Application of Extend System
2:00 - 2:30 p.m.	Dr. David Schlesinger- Workflow and Q/A of Extend System
2:30 - 3:30 p.m.	Drs. Schlesinger, Sheehan, and Xu – Demonstration of Gamma Knife Perfexion and Extend System
3:30 - 6:00 p.m.	Vineyard Tour (Optional)
6:30 p.m.	Dinner

## Wednesday, September 16, 2015

6:00 - 7:00 a.m.	Registration and Breakfast
7:00- 8:00 a.m.	Dr. David Schlesinger Overview of Perfexion Physics <ul style="list-style-type: none"> <li>• Basic Physics Concepts</li> <li>• Perfexion Beam Collimation and Modeling</li> <li>• Loading and Commissioning</li> <li>• Perfexion Dosimetry &amp; Treatment Planning</li> <li>• Perfexion Quality Assurance</li> </ul>
8:00 - 8:30 a.m.	Dr. Sugoto Mukherjee - Advancing Imaging Techniques for GKRS
8:30 - 9:00 a.m.	Dr. Deric Park– Medical Management of Brain Metastasis Patients
9:00 - 9:30 a.m.	Dr. Mark Shaffrey –Surgical Resection versus GKRS of Brain Metastasis
9:30 - 10:00 a.m.	Break
10:00 - 10:30 a.m.	Dr. James Larnar – <ul style="list-style-type: none"> <li>• Radiobiology of Radiosurgery</li> <li>• WBRT versus GKS for Brain Metastasis</li> </ul>
10:30 - 11:00 a.m.	Dr. Jason Sheehan – GKRS for Brain Metastasis
11:00 - 11:30 a.m.	Dr. Zhiyuan Xu <ul style="list-style-type: none"> <li>• Receptor Status and Brain Metastasis</li> <li>• GPA and Brain Metastasis</li> </ul>
11:30 - 12:00 p.m.	Round Table Discussion on GKRS for Brain Metastasis with Drs. Larnar, Park, Shaffrey and Sheehan
12:00 - 1:00 p.m.	Lunch
1:00 - 2:00 p.m.	Drs. Schlesinger, Sheehan, and Xu Hands-on Dose Planning Strategy with the Perfexion and Discussion of Participants' Cases
2:00 - 2:15 p.m.	Dr. Jason Sheehan – Review and Concluding Remarks

# 2015 Advanced Gamma Knife Course

## Course Information

### Date, Time and Location

Participants will arrive on the evening of September 13th, 2015. Classes will begin on Monday, September 14th, 8:00am in Pavilion III, situated at The Boar's Head. The course will conclude on Wednesday, September 16th, 2:15 pm.

### Topics

Gamma Knife Perfexion with specific focus on its use for Pituitary Adenomas, AVMs and Brain Metastasis.

### Size and Participation

Individual participation in discussion and hands-on exercises is expected. The course is limited to 20 participants to foster an effective learning environment. Target audience: Neurosurgeons, Medical Physicists, Radiation Oncologists, Medical Oncologists, Neuro-Oncologists and Otolaryngologists.

### Course Overview

In this course, participants will develop a fundamental knowledge of radiosurgical principles using the Gamma Knife (GK) Perfexion. We will cover the use of the GK Perfexion. Participants will have a thorough knowledge of all aspects of Perfexion's practical for intracranial radiosurgery.

New to the program this year, participants will learn about indications and techniques for multisession radiosurgery with the Gamma Knife Extend System.

We will focus upon the nuances of Gamma Knife surgery for the treatment of AVMs, Pituitary Adenomas, and Brain Metastasis. For AVMs, we will detail our protocol and outcomes for large AVMs, the role of embolization, retreatment of AVMs, a definition of subtotal obliteration and its prognosis, and the delayed changes (e.g. cyst formation and neoplasia) that may follow radiosurgery.

For pituitary adenomas, we will highlight the challenges of retreatment and treatment when there is no discernible lesion on MRI. We will outline the timing for endocrinological remission and the small chance of recurrence despite an initial remission. The potential complications (e.g. delayed hypopituitarism, visual dysfunction, secondary tumors, and stroke) associated with Gamma Knife surgery for pituitary adenomas will also be detailed. The importance of creating an appropriate distance between the tumor and optic pathways prior to Gamma surgery and methods for achieving this will be discussed.

With regard to Brain Metastasis, we will focus on the changing treatment paradigms with regard to the management of patients with stage IV carcinoma. Gamma Knife surgery along with other treatment options will be discussed. In particular, the role of initial and repeat GKS for the Brain Metastasis along with GKS of a surgical resection cavity will be discussed.

The course will also offer much "hands on" training. We will schedule cases relevant to the particular topics being covered on each day. Each day will begin with stereotactic frame placement performed in the operating room. The advantages of frame placement under monitored anesthesia will be discussed. Participants will observe frame placement in the operating room.

In order to offer a diverse and well-rounded course, we have invited others to speak about the history and future of radiosurgery and the roles of medical management, microsurgery and neuro-interventional approaches in the context of Radiosurgery patients.

In summation, we believe the course outlined below will represent a course unlike that offered by other institutions. It will hopefully help allow us to share a different philosophy and a set of techniques not covered in other courses or written about in the literature.

### Accreditation

The University of Virginia School of Medicine is accredited by the ACCME to provide continuing medical education for physicians.

The University of Virginia, Office of CME designates this live activity for a maximum of 19.25 *AMA PRA Category 1 Credit(s)*<sup>™</sup>. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

The University of Virginia School of Medicine awards 19.25 hours of participation (equivalent to *AMA PRA Category 1 Credits*<sup>™</sup>) to each non-physician participant who successfully completes this educational activity. The University of Virginia School of Medicine maintains a permanent record of participation for six (6) years.

### University of Virginia Faculty Lecturers

Webster Crowley, MD  
Department of Neurosurgery

Gregory Hong, MD  
Division of Endocrinology and Metabolism

John A. Jane, Jr., MD  
Department of Neurosurgery

James Larner, MD  
Department of Radiation Oncology

Kenneth Liu, MD  
Department of Neurosurgery

Sugoto Mukherjee, MD  
Department of Radiology

Edward Nemergut, MD  
Department of Anesthesiology

Steven A. Newman, MD  
Department of Ophthalmology

Edward Oldfield, MD  
Department of Neurological Surgery

Deric Park, MD  
Department of Neurosurgery

Mark Quigg, MD  
Department of Neurology

Mark Shaffrey, MD  
Department of Neurosurgery

David Schlesinger, PhD  
Department of Neurosurgery

Jason P. Sheehan MD, PhD  
Department of Neurosurgery

Mary L. Vance, MD  
Division of Endocrinology and Metabolism

Zhiyuan Xu, MD  
Department of Neurosurgery

Ms. Sophia Lee Yu  
Department of Neurosurgery / Gamma Knife

Ms. Elfrida Tandar  
Department of Neurosurgery / Gamma Knife

## Area Information

### Meals and Lodging

All meals are included with the Advanced Course. Breakfast, lunch, dinner and a variety of refreshments will be provided through catered meals. For information about lodging, please see the contact information below:

#### Boar's Head Inn

200 Ednam Drive  
Phone: (434) 296-2181 Fax: (434) 972-6021

#### Courtyard by Marriott

1201 West Main St.  
Phone: (434) 977-1700 Fax: (434) 977-2600

**Charlottesville** - home to the University of Virginia, the birthplace of Thomas Jefferson, and a true representative of the heartland of historic Virginia. Located in central Virginia in the foothills of the Blue Ridge Mountains, Charlottesville has a population of 42,000 in a rural/metropolitan area of about 88,400. Washington, D.C. is less than two hours away, but there are many things to see and do here in town.

**Jefferson's Academical Village**- The University of Virginia is famed for the beauty of its buildings. Designed by Thomas Jefferson, they are considered among the finest examples of classic American architecture. The University is also noted for its scholarly achievements and historical associations. It began with Jefferson's concept and design for a community of scholars, and "academical village." The Rotunda, modeled after the Roman Pantheon, served as focal point, library and classroom. Two ranges extended from the Rotunda; professors lived and taught in the large Pavilions, and students lived in the smaller rooms in between. This tradition is carried on today and the Department of Neurological Surgery holds its teaching conferences in Pavilion V regularly.

**University of Virginia Health System** can trace its beginnings directly to Thomas Jefferson, under whose leadership as Rector, eight schools including a School of Anatomy and Medicine opened on March 7, 1825. Jefferson chose the school's original faculty, a single professor, Robley Dunglison, whose first class of 20 students met in his home on the Grounds. Walter Reed is among the alumni of the Medical School. The teaching hospital, which opened in 1901 as a 25-bed facility, is today housed in a new eight-story building with 597 beds and 30 bassinets. It has nearly 100 intensive care beds. A recent report by U.S. News and World Report listed the Neurosciences clinical program at UVA as among the best in the nation.

**Monticello** - Thomas Jefferson began construction on this architectural masterpiece in 1769 and continued for more than 40 years. He also designed the grounds of his "little mountain home." The roundabout walks, oval flowerbeds, vegetable gardens, vineyards, grove, and graveyard have been fully restored. (434) 984-9800, Hours 9-5. Fee.

**Michie Tavern Museum** - This famous tavern of the 1700's still serves meals in the "Ordinary", a converted log cabin used 200 years ago. Guests enjoy food of the colonial times and can tour the Tavern, outbuildings, general store, and Meadow Run Grist Mill. The general store sells handcrafts and antiques of Virginia. (434) 977-1234, Hours 9-5. Fee.

**Ash Lawn** - Home of President James Monroe, Ash Lawn is a 550-acre historic estate and has been almost fully restored as a working plantation. Special events at Ash Lawn include operas, concerts, and festivals. (434) 293-8000, Hours: 9-6. Fee.

**Wineries** - There are many local wineries that offer tours, wine tastings and sales. Ask us for further information.

**Skyline Drive/Blue Ridge Parkway** - Enjoy the beauty of the Blue Ridge Mountains, scenic overlooks, exhibits, and hiking trails. Located 25 miles west of Charlottesville with easy access via I-64.

For more information about Charlottesville and its surrounding area, visit: <http://www.charlottesville.org/> and <http://www.pursuecharlottesville.com/>

## Other Information

### Disclosure of faculty financial affiliations

The University of Virginia School of Medicine, as an ACCME accredited provider, endorses and strives to comply with the Accreditation Council for Continuing Medical Education (ACCME), Standards of Commercial Support, Commonwealth of Virginia statutes, University of Virginia policies and procedures, and associated federal and private regulations and guidelines on the need for disclosure and monitoring of property and financial interests that may affect the scientific integrity and balance of content delivered in continuing medical education activities under our auspices. The University of Virginia School of Medicine requires that all CME activities accredited through this institution be developed independently and be scientifically rigorous, balanced and objective in the presentation/discussion of its content, theories and practices. All faculty presenters participating in an accredited CME activity are expected to disclose relevant financial relationships with commercial entities occurring within the past 12 months (such as grants, or research support, employee, consultant, stock holder, member of speakers bureau, etc.) The

University of Virginia School of Medicine will employ appropriate mechanisms to resolve potential conflicts of interest to maintain the standards of fair and balanced education to the reader. Questions about specific strategies can be directed to the Office of Continuing Medical Education, University of Virginia School of Medicine, Charlottesville, Virginia.

The faculty and staff of the University of Virginia Continuing Medical Education have no financial affiliations to disclose.

### Disclosure of discussion of non-FDA approved uses for pharmaceutical products and/or medical devices

The University of Virginia School of Medicine, as an ACCME provider, requires that all faculty presenters identify and disclose any "off label" uses for pharmaceutical and medical devices/products. The University of Virginia School of Medicine recommends that each physician fully review all the available data on new products or procedures to instituting them with patients.

### Disclosure for attendance records and certificate distribution

The University of Virginia Office of Continuing Medical Education requires that all participants sign attendance sheets daily to confirm participation in the CME activity for that day.

Certificates of attendance, designating the maximum number of hours of participation, can be printed from the website after attendees have completed the evaluation form online.

### Special Needs

The Americans with Disabilities Act of 1992 requires that all individuals, regardless of their disabilities, have equal access. The Office of Continuing Medical Education of the University of Virginia School of Medicine is pleased to assist participants with special needs. **Requests need to be made in writing and sent to the Office of Continuing Medical Education, Box 800711, 6202 Hospital West, University of Virginia School of Medicine, Charlottesville, VA 22908-0711.**

## Registration Form

\_\_\_\_\_  
Last Name      First Name      Initial      Degrees

\_\_\_\_\_  
Department and Institution

\_\_\_\_\_  
Mailing Address

\_\_\_\_\_  
Work Phone                      Fax

\_\_\_\_\_  
E-mail

\_\_\_\_\_  
Date of Birth (required for tracking CME credits/CEU)

\_\_\_\_\_  
Special Needs (sight impaired, wheelchair, etc)

### Check all that apply:

- Physicians and Medical Physicists Course \$3,000
- Nurse \$2,000
- Residents/Fellow \$750
- Spouse/Guest (for all social events) \$200  
    Attending social functions on  Mon  Tues

### Payment Method:

- Check Enclosed
- Department Check to Follow
- Credit Card

### Credit Card Registration:

- VISA    Master card    Amex

Account Number: \_\_\_\_\_

Expiration Date : \_\_\_\_\_

Signature : \_\_\_\_\_

Registration fee includes program, lunch, and dinner as described in the program. Make checks payable on a U.S. bank only to the UVA Physicians Group. Registration will not be accepted without tuition payment. Cancellations must be made two weeks prior to the start of the course; otherwise the tuition will count towards a future training course.

### Complete the attached registration form and mail it together with payment to:

UVA Dept. of Neurosurgery  
PO Box 800212  
Attn: Sophie Lee Yu, Conference Coordinator  
Charlottesville, VA 22908 USA  
Phone: 434-924-2336  
Fax: 434-977-6279  
E-mail: sly9p@virginia.edu

### You may also register online at:

[www.medicine.virginia.edu/gamma-knife-course](http://www.medicine.virginia.edu/gamma-knife-course)

Registrations will not be processed unless  
full payment is received.

## Advanced Gamma Knife Course *at* The Boar's Head, Charlottesville

September 14-16, 2015



**Department of Neurological Surgery**  
University of Virginia, Charlottesville, VA

Sponsored by:  
The Office of Continuing Medical Education  
University of Virginia, Charlottesville, VA