







molecular neurology, molecular neuroscience, cellular neuroscience, cellular and systems electrophysiology (selection)  Bachelor's degree or equivalent; IELTS 7.0

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#### MICROSURGERY OF ANEURYSMS: RECENT ADVANCES







*St. Louis University/School of Medicine*

 USA: St. Louis, MO  English  February 27th, 2012 – March 2nd, 2012  Max. USD 2 395  Pterional approach and opening the sylvian fissure, demonstration: cadaver dissection, internal carotid artery aneurysms, PCOM, bifurcation, and anterior choroidal aneurysms, endoscopic assisted clipping of intracranial aneurysms, hands-on cadaver lab session: cadaver dissection

**INFO** Finger, Ciera, Tel.: +1/(0)314/977 7362, E-mail: cfinger@slu.edu, <http://pa.slu.edu>

#### MSc ENDOVASCULAR NEUROSURGERY (INTERVENTIONAL NEURORADIOLOGY)

*University of Oxford/Department of Neurosurgery*






 United Kingdom: Oxford  English  Start: September 2012  On request  Pathology, physiology and anatomy, diagnosis, interventional techniques  Honours degree or equivalent


**INFO** Byrne, James, Tel.: +44/(0)1865/234 316,  
E-mail: James.Byrne@nds.ox.ac.uk, www.medsci.ox.ac.uk/radiology

#### PRINCIPLES AND PRACTICE OF GAMMA KNIFE RADIOSURGERY

*University of Pittsburgh School of Medicine (UPSM)/*

*Department of Neurological Surgery*






 USA: Pittsburgh, PA  English  October 24th, 2011 – October 28th, 2011  USD 6 200  Historical view on stereotaxy and radiosurgery, stereotactic applications, stereotactic targeting and MR stereotactic imaging, functioning/maintenance of the different gamma knife units, vascular malformation case review, dose planning, basic radiobiology, brain metastases & gliomas (selection)


 ACCME – Accreditation Council for Continuing Medical Education  
**CREDITPOINTS** 49,5 AMA PRA Category

**INFO** Baker, Charlene, Tel.: +1/(0)412/881-0602, Fax: +1/(0)412/881-2450,  
E-mail: bakerch@comcast.net, www.neurosurgery.pitt.edu

#### TRAININGSKURS KRANIELLE ENDOSKOPISCHE NEUROCHIRURGIE DER NEUROCHIRURGISCHEN AKADEMIE FÜR AUS-, FORT- UND WEITERBILDUNG (NCAFW)

*Aesculap Akademie Deutschland*




 Germany: Berlin  German  November 3rd, 2011 – November 5th, 2011  Auf Anfrage  Subarachnoidale Anatomie, endoskopische Techniken, endoskopische Anatomie am Kadaver, intraventrikuläre Endoskopie, Endoskop-assistierte Technik (Auszug)

 Max. TeilnehmerInnenanzahl: 18  
**INFO** Hoelle, Sandra, Tel.: +49/(0)7461/95-2186, Fax: +49/(0)7461/95-2050,  
E-mail: sandra.hoelle@aesculap-akademie.de,  
[www.aesculap-akademie.de](http://www.aesculap-akademie.de)

#### CONFERENCES & CONGRESSES

##### 39<sup>TH</sup> ANNUAL MEETING OF THE ISPN

*The International Society for Pediatric Neurosurgery (ISPN)*

 India: Goa  English  October 16th, 2011 – October 20th, 2011

**INFO** E-mail: info@ispn2011goa.org, www.ispneurosurgery.org

##### 13. SYMPOSIUM DER ÖSTERREICHISCHEN

##### GESELLSCHAFT FÜR WIRBELSÄULENCHIRURGIE

*Österreichische Gesellschaft für Wirbelsäulen-Chirurgie (Austrian Spine Society)*

 Austria: Vienna  German  January 28th, 2012

**INFO** E-mail: kknob@medacad.org, www.spine.at

#### BACKGROUND INFORMATION

### Experiences and Trainings for Neuronavigation in Neurosurgery

BY WOLFGANG K. PFISTERER



Univ. Doz. Dr. Wolfgang K. Pfisterer  
SMZ-Ost Donauespital, Vienna, Austria

Ships arrived at their destination harbours before GPS was invented and intracranial lesions were operated on before neuronavigation systems. The result is that for both – ships and patients – the journey became safe. In 1889, D.N. Zernov, a Russian surgeon demonstrated the first brain navigator using a coordination system: a device with an aluminum circular frame, which could be fixed to a patient's skull. The first stereotactic instrument used clinically was invented by Spiegel and Wycis in Philadelphia in 1947 which is the beginning of stereotactic neurosurgery era. Technological advances in imaging and computerised systems have since improved accuracy.

The next milestone in stereotactic methodology was at the beginning of the 1990s, when the first »frameless instruments« came on the market. These systems revolutionised the planning of surgery and altered the practice of neurosurgery as well. Instead of a frame screwed on the patient's head, simple skin markers, anatomical landmarks on the skin's surface give the computer systems the necessary information to define the space within the head. These devices enable interactive image guided neurosurgery – »Neuronavigation« was born.

Using thin-slice CT and/or MR-data set, 3-D reconstruction of the surface of the head, and also of the brain surface for virtual visualisation of the gyri and sulci, targets e.g. a tumor, the ventricular system, and vessels may improve knowledge about the critical anatomical and pathological structures. Therefore neuronavigation systems can be used as devices for teaching and even for some sort of virtual surgery.

Dedicated specialised professionals offer books, courses and workshops in accordance with neurosurgical societies and help therefore to meet the requirements and improve the skills for neuronavigation.

#### RECOMMENDED WEBSITES

Österreichische Gesellschaft für Neurochirurgie,  
[www.neurochirurgie.ac.at](http://www.neurochirurgie.ac.at)

Deutsche Gesellschaft für Neurochirurgie, [www.dgnc.de](http://www.dgnc.de)

European Association of Neurosurgical Societies,

[www.eans.org](http://www.eans.org)

American Association of Neurological Surgeons, [www.aans.org](http://www.aans.org)

Congress of Neurological Surgeons, [www.neurosurgeon.org](http://www.neurosurgeon.org)

#### COMPANIES DEALING WITH THIS TOPIC

Brainlab Inc., <http://brainlab-education.com>

Medtronic Inc., [www.medtronic.com](http://www.medtronic.com)

B.Braun Austria GmbH Aesculap Akademie, [www.bbraun.at](http://www.bbraun.at)