# 7th Intraoperative Imaging Society Meeting

## Wednesday, March 13, 2019

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>10:00-11:00 am</td>
<td>IOIS Board meeting</td>
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<tr>
<td>10:00</td>
<td>Registration</td>
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<tr>
<td>12:00 pm</td>
<td>Welcome, Opening Remarks and Introduction to Practical Course</td>
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<td>Daniel Orringer, MD</td>
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### Practical Course:

<table>
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<tr>
<th>Time</th>
<th>Session</th>
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<tr>
<td>1:00-1:20</td>
<td>Didactic Session 1: Intraoperative Ultrasound</td>
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<tr>
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<td>Francesco Prada, MD and Geirmund Unsgård, MD</td>
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<tr>
<td>1:20-1:40</td>
<td>Case Presentations, Hands-on Session and Q&amp;A</td>
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<td>1:40-1:45</td>
<td>Discussion/Break</td>
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<td>1:45-2:05</td>
<td>Didactic Session 2: Fluorescence Guided Surgery - 5ALA and Fluorescein</td>
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<td>Constantinos Hadjipanayis, MD and Jeff Bruce, MD</td>
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<td>2:05-2:25</td>
<td>Case Presentations, Hands-on Session and Q&amp;A</td>
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<td>2:25-2:30</td>
<td>Discussion/Break</td>
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<td>2:30-2:50</td>
<td>Didactic Session 3: Stimulated Raman Histology</td>
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<td>Sandra Camelo-Piragua, MD and Daniel Orringer, MD</td>
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<td>2:50-3:10</td>
<td>Case Presentations, Hands-on Session and Q&amp;A</td>
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<td>3:10-3:15</td>
<td>Discussion/Break</td>
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<td>3:15-3:35</td>
<td>Didactic Session 4: Laser Interstitial Thermal Therapy</td>
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<td>Dan Curry, MD and Veronica Chiang, MD</td>
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<td>3:35-3:55</td>
<td>Case Presentations, Hands-on Session and Q&amp;A</td>
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<td>3:55-4:00</td>
<td>Discussion/Break</td>
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<td>4:00-4:20</td>
<td>Didactic Session 5: Use of Tubular Retractor Tractography and fMRI for</td>
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<td>Presurgical Planning/Intraop Functional Imaging</td>
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<td>Michael E. Sughrue, MD and Mitesh Shah, MD</td>
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<tr>
<td>4:20-4:40</td>
<td>Case Presentations, Hands-on Session and Q&amp;A</td>
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<td>5:00-7:00</td>
<td>Welcome Reception</td>
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## Thursday, March 14, 2019

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<tr>
<th>Time</th>
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<tbody>
<tr>
<td>7:00-8:00 am</td>
<td>Registration/Breakfast</td>
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<tr>
<td>8:00-8:30 am</td>
<td>Presidential Address and Opening Remarks</td>
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<td>Michael Chicoine, MD</td>
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### Session 1:

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<tr>
<td>8:30-8:45</td>
<td>Innovation at TMCx: From Concept to Clinical Implementation</td>
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<td>Albert Huang, MD</td>
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<td>8:45-9:00</td>
<td>Glioma Surgery in Smart Cyber Operating Theater Realized Through IoT</td>
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<td>Yoshihiro Muragaki, MD, PhD</td>
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<td>9:00-9:15</td>
<td>Utility of iMRI for Non-Enhancing Low-Grade Gliomas: Why there are</td>
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<td>Implications also for Postoperative Surveillance</td>
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<td>Moritz Scherer, MD</td>
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<td>9:15-9:30</td>
<td>Intraoperative BOLD Imaging</td>
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<td>Oliver Bozinov, MD</td>
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9:30-10:00  iMRI vs 5-ALA  
Constantin Roder, MD

10:00-10:15  iMRI for Gliomas of Eloquent Cortex  
Marcos Malduan, MD

Alexander Yahanda

10:25-10:35  Abstract Talk: Volumetric Analysis of Intraoperative MRI Guided Surgery in Low-Grade Gliomas: Outcome assessment in a retrospective multicenter cohort by the German Study-Group for Intraoperative MRI  
Moritz Scherer, MD

10:35-11:00  Break

11:00-11:30  Image Guided Therapy Program at MD Anderson  
Introduction: Jeffrey Weinberg, MD  
John Hazle, MD

11:30-11:40  Question and Answer Session

12:00-1:00 pm  Lunch (provided)

1:00-1:30  Techno-Stories From Space  
Introduction: Jeffrey Weinberg, MD  
Donald Pettit, PhD - NASA Representative

1:30-1:40  Question and Answer Session

1:40-2:00  Break

Session 2:  Advanced Imaging Modalities for Presurgical Planning  
Moderators: Richard Bouchard, MD and Oliver Bozinov, MD

2:00-2:15  PET in Glioma and Meningioma Surgery/Statistics  
Niklas Thon, MD, PhD

2:15-2:30  Advanced Ultrasonography  
Richard Bouchard, PhD

2:30-2:45  White Matter Tractography for Neurosurgical Planning  
Lauren O’Donnell, MD

2:45-3:00  Solutions and Challenges for Using fMRI to Plan Neurosurgical Procedures in Eloquent Locations  
Alexandra Golby, MD

3:00-3:15  Resting State and Surgical Planning for GBM in Intraoperative MRI Environment  
Albert Kim, MD, PhD

3:15-3:25  Abstract Talk: Toward Real Time Brain Shift Prediction to Update Preoperative MRI During Brain Surgery  
Anne Lesage, PhD

3:25-3:35  Abstract Talk: Intraoperative Neurosurgical White Matter Imaging—Evaluation of a Novel MRI Sequence  
Cameron Elliott, MD, PhD

3:35-3:45  Abstract Talk: Seed-Based Resting-State fMRI Analysis for Preoperative Language Mapping: A Data-Driven Approach for Guiding the Seed Selection  
Ho-Ling Liu, PhD

3:45-3:55  Abstract Talk: Intraoperative Identification of White Matter Tracts with Diffusion Tensor Imaging with 1.5T iMRI  
Peter Sylvester, MD

4:10-4:30  Break

Session 3:  Interpretation of Studies Evaluating Intraoperative Imaging Techniques  
Moderators: Marcus Maldaun, MD and Zvi Cohen, MD

4:30-4:45  An Evidence-Based Approach to the Application Intraoperative Imaging in Brain Tumor Surgery  
Colin Watts, MD
4:45-5:00  Application of Intraoperative Imaging Techniques in the Molecular Era of Glioma Diagnosis
Christian Senft, MD

5:00-5:15  Twenty Year Experience Using Low Field iMRI for Intra-Axial Tumor Resection
Zvi Cohen, MD

5:15-5:30  iMRI Applications in Children
John Honeycutt, MD

5:30-5:40  Abstract Talk: Intraoperative MRI versus 5-ALA in Glioblastoma Resection: A Systematic Review and Meta-Analysis
Danielle Golub, MD

5:40-5:50  Abstract Talk: Intraoperative MRI in Transsphenoidal Pituitary Surgery: 10 years' Experience with iMRT Assisted Resection of Pituitary Adenomas
Andrej Pala, MD

5:50 pm  Abstract Talk: Value of Intraoperative MRI for Resection Control in Microscopic Transsphenoidal Pituitary Surgery
Moritz Scherer, MD

6:00 pm  Adjourn

Friday, March 15, 2019

7:00-8:00 am  Registration/Breakfast

8:00-8:05 am  Opening Remarks and Introduction of Keynote Speaker
Daniel Orringer, MD

8:05-8:35  Keynote: Optical Techniques to Improving Outcomes in Neurosurgery and the Development of 5-ALA and Future Directions for 5-ALA and FGS
Walter Stummer, MD

8:35-8:45  Question and Answer Session

8:45-9:05  Break

Session 4:  Fluorescence Guided Surgery and Optical Imaging Techniques
Moderators:  Daniel Orringer, MD and Walter Stummer, MD

9:05-9:20  The Application of Handheld Confocal Microscopy in Brain Tumor Surgery
Peter Nakaji, MD

9:20-9:35  Pushing Limits of Fluorescence-Guided Surgery
Linton Evans, MD

9:35-9:50  Near Infrared Imaging for Brain tumor resection
John Y. K. Lee, MD

9:50-10:05  Stimulated Raman Histology
Todd Hollon, MD

10:05-10:20  2HG Spectroscopy
Randy Jensen, MD

10:20-10:35  Fluorescence Guided Surgery
Costas Hadjipanayis, MD

10:35-10:50  Abstract Talk: Stimulated Raman Histology for the Rapid Intraoperative Diagnosis of Sellar Region Tumors
Todd Hollon, MD

10:50-11:00  Abstract Talk: Role of Photodynamic Therapy Using Talaporfin Sodium and a Semiconductor Laser in Patients with Newly Diagnosed Glioblastoma
Shunsuke Tsuzuki

11:00-11:10  Abstract Talk: The Additional Value of 11C-Methionine Positron Emission Tomography and Perfusion Weighted MRI in Fluorescence and Intraoperative MRI-Guided Resection of Glioblastoma
Andrej Pala, MD

11:10-11:35  Break
Keynote: Mass Spectrometry for Cancer Diagnosis and Detection
Introduction: Daniel Orringer, MD
Livia Eberlin, PhD

12:05-12:15 pm Question and Answer Session

12:15-1:20 Lunch (provided)

Session 5: Intraoperative Ultrasound, Focused Ultrasound, Surgical Robotics, and other Modalities
Moderators: Richard Bucholz, MD and Daniel Orringer, MD

1:20-1:35 MR Guided Applications of High-Intensity Focused Ultrasound for Brain Tumor Ablation
Julie Pilitsis, MD

1:35-1:50 LITT-Emerging Applications
Eric Leuthardt, MD

1:50-2:05 Applications of Radiogenomics to Neurosurgical Practice
Rivka Colen, MD

2:05-2:25 Surgical Robotics
Garnette Sutherland, MD

2:25-2:45 Break

2:45-3:00 Intraoperative CT as a Registration Device
Christopher Nimsky, MD

3:00-3:15 iUS
Francesco Prada, MD

3:15-3:30 Frameless Registration Techniques Using Intraoperative CT
Richard Bucholz, MD

3:30-3:45 Surgical VR Concepts, 3D Visualization
John Golfinos, MD

3:45-3:55 Abstract Talk: Brain Atlas (BA) and Virtual Reality (VR) Improves Analysis of Complex Brain and Skull Base Tumors
Vinodh A. Kumar, MD

3:55-4:05 Abstract Talk: How to Improve the Benefit of Ultrasound in Intraoperative Imaging
Geirmund Unsgård, MD

4:05-4:15 Abstract Talk: Intraoperative MRI for Minimally Invasive Resection of Deep-Seated Brain Tumors Via Tubular Retractors
James Sun, MD

4:15-4:25 Abstract Talk: First Results Using a Highly Mobile Computed Tomography for Cranial Surgery
David P. Sarmet, MD

4:25-4:35 Robotic Devices in the Hyper SCOT (Smart Cyber Operating Theatre)
Jun Okamoto, MD

6:30-9:30 pm George Ranch Dinner Event

Saturday, March 16, 2019

7:00-8:00 am Registration/Breakfast

8:00-8:05 am Opening Remarks
Jeffrey Weinberg, MD

Session 6: LITT and other Advanced Therapeutics
Moderators: John Honeycutt, MD and Michael Schulder, MD

8:05-8:20 Review of Published Evidence for LITT
Michael Schulder, MD

8:20-8:35 LITT-Radiation Necrosis
Veronica Chiang, MD
8:35-8:50  LITT-Brain Tumor- LITT for Radiation Necrosis in the Setting of Metastatic Disease
Ian Lee, MD

8:50-9:05  LITT for Epilepsy
Dan Curry, MD

9:05-9:20  LITT-Glioma
Gene Barnett, MD

9:20-9:35  Applications of Focused Ultrasound in Neurosurgery
Ying Meng, MD

Rafael A. Vega, MD, PhD

9:45-10:00  Break

Session 7:  Neuro Anesthesia, Robotics, Functional Neurosurgery, Cerebrovascular Imaging & Other Advances in the iMRI Environment
Moderator: Richard Bucholz, MD

10:00-10:15  Abstract Talk: Perioperative Considerations for an Awake Craniotomy in the Intraoperative MR Imaging Suite (iMRI) Incorporating a Musical Instrument as Part of Motor and Cognitive Monitoring
Shreyas Bhavasar, MD

10:15-10:30  Abstract Talk: Timing of Postoperative MRI in Low Grade Glioma Surgery: Increasing Accuracy by Ultra-Early Imaging
Jan Coburger, MD

10:30-10:45  Anesthetic Considerations for Awake Craniotomies in iMRI Environment
David Ferson, MD

10:45-11:00  Robotic SEEG and LITT
Nitin Tandon, MD

11:00-11:15  The Use of Image Guidance in Functional Neurosurgery
Paul Larson, MD

11:15-11:30  Intraoperative Vascular Imaging
Colin Derdeyn, MD

11:30-11:45  Indications for Use; Pitfalls; Utility of Extent of Resection
Jan Coburger, MD

11:45-12:00  Augmented Reality
Osamah Choudhry, MD

12:00-1:00pm  Box Lunch

1:00-1:55pm  Rapid Fire Abstract Session
Moderators: Jeffrey Weinberg, MD and Daniel Orringer, MD

1:00-1:05  Abstract Talk: Prognostic Prediction of Hypertensive Intracerebral Hemorrhage Using CT Radiomics and Machine Learning
X. Xu, MD

1:05-1:10  Abstract Talk: Prospective Analysis of Intraoperative Angiography in a Hybrid Operating Room Setup in the Treatment of Cerebrovascular Lesions: Comparison to Indocyanine Green Videoangiography and Analysis of Efficacy, Workflow and Cost
Gregor Durner, MD

1:10-1:15  Abstract Talk: Application of Augmented Reality (AR) in Ventricular Puncture
Michal Hlaváč, MD

1:15-1:20  Abstract Talk: Estimated Maps of Proliferative Activity Present Alternative Targets For Initial Glioma Biopsy
Evan Gates, MS

1:20-1:25  Abstract Talk: Dual-Utility Intraoperative MRI: Experience of the First 100 Patients
Oliver W. Sakowitz, MD

1:25-1:30  Abstract Talk: Establishment of a multi-center intraoperative MRI database
Abstract Talk: Intraoperative MRI Assisted Neuro-Port Surgery for the Resection of Cerebral Intraparenchymal Cavernous Malformation
Zhao

1:35-1:40

Abstract Talk: Implementation of Fluorescence-Guided Surgery, A Single Center Experience and Model of Logistical Workflow for Future Adopters of 5-Aminolevulinic Acid
Sameah Haider, MD

1:40-1:45

Abstract Talk: Alterations in Functional Connectomics Associated with Neurocognitive Changes Following Brain Tumor Resection
Kyle Noll, PhD

1:45-1:50

Abstract Talk: Resting State fMRI Improves Localization of Eloquent Speech and Motor Areas in Glioma Patients
Vinoth A. Kumar, MD, PhD

1:50-1:55

Abstract Talk: Laser Interstitial Thermal Therapy and Intraoperative MR Thermography in the setting of Aneurysm Clips
Kimberly Hoang, MD

1:55-2:00

Award Presentation for Top Abstract Presentations & Meeting Wrap-up

2:00pm

Adjourn