

**NIH Workshop on
Clinical Image-Guided Therapy: Opportunities and Needs
March 10–11, 2008
Rockville, Maryland**

Program

MONDAY, MARCH 10

- 8:00–8:15 a.m. *Introduction*
Keyvan Farahani, Ph.D. (NCI/NIH)
- 8:15–8:45 a.m. **Day 1 Keynote Address: National Center for Image-Guided Therapy**
Ferenc Jolesz, M.D. (BWH)

Session 1: Prostate

Moderator: Keyvan Farahani, Ph.D. (NCI/NIH)

- 8:45–9:05 a.m. Session Keynote: Image-Guided Interventions in Prostate Cancer
Peter Choyke, M.D. (NCI/NIH)
- 9:05–9:20 a.m. *Prostate Image-Guided Intervention: The NCIGT Core and Beyond*
Clare Tempny, M.D. (NCIGT/BWH)
- 9:20–9:35 a.m. *Image Guidance During Radiotherapeutic Interventions for Prostate Cancer*
Cynthia Ménard, M.D. (U Toronto)
- 9:35–10:05 a.m. Speakers Panel
- 10:05–10:20 a.m. Break

Session 2: Body

Moderator: Pushpa Tandon, Ph.D. (NCI/NIH)

- 10:20–10:40 a.m. Session Keynote: RFA of Hepatic Tumors: Where Do We Go From Here?
Gerald (Chip) Dodd III, M.D. (UTHSC)
- 10:40–10:55 a.m. *Planning, Targeting, Monitoring, Control, and Assessment of Image-Guided Percutaneous Ablations: Need for a 3-Dimensional Volumetric Approach*
Kemal Tuncali, M.D. (NCIGT/BWH)
- 10:55–11:10 a.m. *MRI-Mediated Radiofrequency Ablation*
*Erez Nevo, M.D., D.Sc. (Robin Medical, Inc.)

11:10–11:25 a.m. *Image-Guided Osteoporotic Bone Augmentation with Intraoperative Biomechanical Guidance*
*Mehran Armand, Ph.D. (Johns Hopkins)

11:25–11:55 a.m. Speakers Panel

11:55 a.m.–1:00 p.m. Lunch

Session 3: Neurosurgery

Moderator: John Haller, Ph.D. (NIBIB/NIH)

1:00–1:20 p.m. Session Keynote: *Intraoperative MR-Guided Neurosurgery*
Walter Hall, M.D., M.B.A. (SUNY Upstate, NY)

1:20–1:35 p.m. *Image-Guided Neurosurgery*
Ferenc Jolesz, M.D. (NCIGT/BWH)

1:35–1:50 p.m. *Research Interfaces for Image Guided Neurosurgery*
*Xenophon Papademetris, Ph.D. (Yale)

1:50–2:05 p.m. *Mechanical Clot Obliteration for the Treatment of Stroke*
*Matthew Gounis, Ph.D. (UMASS Worcester)

2:05–2:35 p.m. Speakers Panel

2:35–3:35 p.m. **Poster Presentations**

Session 4: Computation and Visualization

Moderator: Abraham Levy, Ph.D. (NCRR/NIH)

3:35–4:05 p.m. Session Keynote: *Computational and Visualization Challenges in 4-Dimensional Radiotherapy*
George Chen, Ph.D. (MGH)

4:05–4:20 p.m. *The NCIGT Computation Core: A Technological Resource for Surgical Navigation Projects*
William (Sandy) Wells, Ph.D. (NCIGT/BWH)

4:20–4:35 p.m. *The Changing Roles for Soft-Tissue Modeling: Therapy Guidance*
*Michael Miga, Ph.D. (Vanderbilt)

4:35–4:50 p.m. *In-Situ Image Guidance: Recent Advances in Design, Implementation, and Psychophysics*
*George Stetten, M.D., Ph.D. (U Pittsburgh)

4:50–5:05 p.m. *MRI-Guided Radiation Therapy: Brachytherapy*
Robert Cormack, Ph.D. (Rad. Onc., BWH)

5:05–5:35 p.m. Speakers Panel

5:45–6:45 p.m. Parallel Breakout Sessions

- **Breakout Session 1:**
Preoperative Functional MRI and Diffusion Tensor Imaging: Acquisition and Visualization for Neurosurgery
Steve Whalen, B.S., and Lauren O'Donnell, Ph.D. (NCIGT/BWH)
- **Breakout Session 2:**
Slicer Prostate Module
Steve Haker, Ph.D., and Nobuy Hata, Ph.D. (NCIGT/BWH)
- **Breakout Session 3:**
Liver Visualization: Application of Slicer 3.0 for Non-Rigid, Multi-Modality Image Registration for Thermal Ablation: Pre-Procedural MRI on Intra-Procedural CT for Tumor Targeting
Nicu Archip, Ph.D., and P. Morrison, M.Sc. (NCIGT/BWH)

TUESDAY, MARCH 11

- 8:00–8:10 a.m. Introduction
- 8:10–8:40 a.m. **Day 2 Keynote Address:** *Image-Guided Local Drug and Gene Delivery*
Chrit Moonen, Ph.D. (U Bordeaux, France)

Session 5: Focused Ultrasound & Endoscopy

Moderator: Hector Lopez, Ph.D. (NIBIB/NIH)

- 8:40–9:00 a.m. *Session Keynote: Image-Guided Focused Ultrasound Therapy*
Kullervo Hynynen, Ph.D. (U Toronto)
- 9:00–9:15 a.m. *Focused Ultrasound Treatment Planning*
Gregory Clement, Ph.D. (NCIGT/BWH)
- 9:15–9:30 a.m. *Guiding Cardiac Ablation Therapy with ARFI Imaging*
*Patrick Wolf, Ph.D. (Duke)
- 9:30–9:45 a.m. *Spectrally Encoded Endoscopy for Image-Guided Therapy of Twin-Twin Transfusion Syndrome*
*Gary Tearney, M.D., Ph.D. (MGH)
- 9:45–10:15 a.m. Speakers Panel
- 10:15–10:30 a.m. Break

Session 6: Imaging

Moderator: Abraham Levy, Ph.D. (NCRR/NIH)

- 10:30–10:50 a.m. *Session Keynote: MR Imaging for Image-Guided Interventions*
*John Pauly, Ph.D. (Stanford)
- 10:50–11:05 a.m. *Building a Toolbox to Support Enhanced MR Imaging in Image-Guided Therapy*
Larry Panych, Ph.D. (NCIGT/BWH)
- 11:05–11:20 a.m. *Body Imaging – A Role for Light-Based Imaging?*
*Dennis Fowler, M.D. (Columbia)
- 11:20–11:35 a.m. *An Integrated MRI-Guided Electrophysiology Diagnosis/Therapy System: Lessons Learned for Closed-Bore Interventional Procedures*
Ehud Schmidt, Ph.D. (BWH)
- 11:35–12:00 p.m. Speakers Panel
- 12:00–1:00 p.m. Lunch

Session 7: Targeted Drug and Cell Delivery

Moderator: Keyvan Farahani, Ph.D. (NCI/NIH)

- 1:00–1:20 p.m. *Session Keynote: Image-Guided Therapy in Cancer*
Zaver Bhujwala, Ph.D. (Johns Hopkins)
- 1:20–1:35 p.m. *Targeted Drug Delivery in the Brain via Ultrasound-Induced Blood-Brain Barrier Disruption*
Nathan McDannold, Ph.D. (NCIGT/BWH)
- 1:35–1:50 p.m. *Microbubbles as a Tool for Targeted Ultrasound Imaging and Drug Delivery*
Alexander (Sasha) Klibanov, Ph.D. (U Virginia)
- 1:50–2:05 p.m. *Cell Tracking and Cell Delivery: From Imaging to Intervention*
Jeff Bulte, Ph.D. (Johns Hopkins)
- 2:05–2:35 p.m. Speakers Panel
- 2:35–2:45 p.m. Concluding Remarks
- Adjournment

* NIBIB IGI RFA-06-003 Principal Investigator