

IIOS Summer School

Joint summer school between Oslo University Hospital and the Norwegian University of Science and Technology.

Training Course on Intraoperative imaging and image guided therapy

Part I: Interventional MRI in image guided procedures (Oslo, August 26-27, 2010)

The Interventional Centre, Oslo University Hospital, Sognsvannsveien, Oslo, N-0027, Norway

(www.interventionalcentre.com) / I³OS

The course will provide an introduction to the fundamentals in physics related to MR-imaging and the use of MR-imaging in neuro and vascular structures. Basic theory on image navigation and general intraoperative use of MRI will also be covered. Finally some examples of applications using intraoperative MR and the plans toward the use of MR-tracking for intra-operative catheter navigation in 3T MR.

- Introduction to Basic MR imaging
- Neuro imaging and functional MRI
- Vascular imaging in MR
- Basic principles of image navigation
- Applications for image navigation
- Different principles of Intraoperative MRI
- Applications for Intraoperative MRI
- Real-time Intra-operative catheter navigation in 3T MR
- Guided tour at The Interventional Centre including demonstration

SESSION I: INTRODUCTION TO BASICS IN MR IMAGING AND NAVIGATION

Thursday 26th August 2010

09:00	Registration and Coffee	
09:30	Welcome and Introduction	Erik Fosse (IVC)
10:00	Introduction to Basic MR Imaging	Frederic Courevaud (IVC)
11:00	Neuro imaging and functional MRI	Atle Bjornerud (IVC)
12:00	Lunch	
13:00	Vascular MRI	Frederic Courevaud (IVC)
14:00	Basic Navigation	Ole Jakob Elle (IVC)
15:00	Clinical Application of Image Navigation	Jon Ramm-Pettersen (Neurosurgery)
16:00	Hands-on Navigation	
17:30	Close	



Integrated Interventional Imaging Operating Systems



Oslo University Hospital

The Interventional Centre

SESSION II: CLINICAL USE OF IMAGE NAVIGATION AND INTRAOPERATIVE MRI

Friday 27th August 2010

09:00	Different principles of Intraoperative MRI	Per Kristian Hol (IVC)
10:00	MR Compatibility	Terje Tillung (IVC)
11:00	Break	
11:30	Handling of patients in Intraoperative MRI	Per Steinar Halvorsen (IVC)
12:30	Lunch	
13:30	Clinical experience with Intraoperative MRI	Torstein Meling (Neurosurgery)
14:30	Real-time Intra-operative catheter navigation in 3T MR	Frederic Courevaud (IVC)
15:00	Guided Tour of The Interventional Centre	
17:00	Close	

Part II: 3D Ultrasound and Neuronavigation (Trondheim, August 31st – September 1st, 2010)

The Norwegian University of Science and Technology, 7491, Trondheim, Norway (www.ntnu.no) / I³OS

The course will give you an introduction in how to navigate surgical instrument and perform resection guidance and control using 2D and 3D ultrasound integrated with neuronavigation.

Special topics covered in the course will be:

- Basic ultrasound imaging
- Basic principles of neuronavigation
- 3D ultrasound acquisition
- Image guided resection based on 3D ultrasound
- Hands on session and training
- Clinical experiences

SESSION I: INTRODUCTION TO BASIC ULTRASOUND IMAGING AND NEURONAVIGATION

Tuesday 31st August 2010

08:30	Registration and Coffee	
09:30	Welcome and Introduction	Toril N Hernes (SINTEF)
09:15	Basics of ultrasound imaging	Tormod Selbekk,(SINTEF)
10:00	Basics of ultrasound based navigated neurosurgery	Toril N Hernes (SINTEF)
10:45	Break	
11:00	Ultrasound imaging and interpretation	Tormod Selbekk,(SINTEF)
12:00	Lunch	

SESSION II: PRACTICAL ULTRASOUND BASED NEURONAVIGATION

Tuesday 31st August 2010

13:00	How to acquire an excellent 3D ultrasound image volume in a clinical setting followed by plenary session	Geirmund Unsgård, (St Olavs Hospital)
14:00	Break	
14:15	Hands on training session - ultrasound and neuronavigation	Tormod Selbekk,(SINTEF)
15:30	Summary of hands on training	Toril N Hernes (SINTEF)
15:45	Close	

SESSION III: CLINICAL EXPERIENCES WITH ULTRASOUND GUIDED NEUROSURGERY

Wednesday 1st September 2010

09:00	3D ultrasound in resection of low-grade and high-grade glioma	Geirmund Unsgård, (St Olavs Hospital)
09:40	Ultrasound guided resection - Usefulness and impact of image quality	Ole Solheim, (St. Olavs Hospital)
10:00	Comparison of ultrasound findings vs. histopathology in glioma surgery	Tormod Selbekk,(SINTEF)
10:30	Break	
10:45	Ultrasound in pituitary surgery	Ole Solheim, (St. Olavs Hospital)
11:15	3D ultrasound in resection of skullbase tumours ,	Geirmund Unsgård, (St Olavs Hospital)
11:45	Ultrasound angio in vascular surgery	Geirmund Unsgård, (St Olavs Hospital)
12:00	Lunch	

SESSION IV FUTURE PERSPECTIVES IN ULTRASOUND AND IMAGE GUIDED SURGERY

Wednesday 1st September 2010

13:00	Multimodal imaging and display in image guided interventions	Frank Lindseth, (SINTEF)
13:20	SURF - a new ultrasound technique for improved contrast imaging	Rune Hansen, (SINTEF/NTNU)
13:40	Ultrasound and navigation in laparoscopic surgery	Thomas Lango (SINTEF)
14:00	Navigated endovascular procedures	Frode Manstad Hulaas, (NTNU)
14:30	Visiting Operating Rooms of the Future at St. Olavs Hospital	Jan Gunnar Skogås, (Manager, St Olavs Hospital)
15:30	Summary of course – evaluation	Toril N Hernes (SINTEF)
15:45	Close	