

# MI-lab Work-shop on future ultrasound probe technology.

Date: Thursday, March 26. 2009.

Location: Rica Nidelven Hotel, Plenumssal

## *Background:*

*Future ultrasound probes will have a tight integration of transducer technology with electronic circuitry. This development has already started, specifically in connection with 3D probes. Further developments raise several challenges to technology on the component level as well as on assembly and integration. The ambition of this work-shop is to address some of these problems in an open discussion between engineers and scientists engaged in the subject. The ambition being that this will help prioritizing and focusing future work.*

## Tentative Program:

### 9.30 I: Transducers

1.1 Materials and designs; *Jean-Francois Gelly, PDI/GE Ultrasound Probes*

1.2 SURF Imaging, A challenge to transducer design?, *Bjørn Angelsen, NTNU.*

### 10.30 II: Power requirements

2.1 Power requirements in relation to applications (TTE, TEE, IVUS); *Kjell Kristoffersen, GE Ultrasound/NTNU.*

2.2 Receive amplifiers, A/D converters, and beam formers; What can be expected in the future? *Trond Ytterdal, NTNU*

2.3 Transmitters; The most difficult obstacle? *Thomas Halvorsrød, GE Vingmed Ultrasound*

### 12.00 III Beam forming

3.1 3-D Receive beam forming, overview of methods; *Kjell Kristoffersen, GE Ultrasound/NTNU.*

3.2 3-D Transmit beam forming, *Hans Torp, NTNU*

### 13.00 Lunch

### 13.45 IV Acoustic/Electronic stack design, interconnect, and assembly

4.1 Techniques available and under development; *Maaïke Visser Taklo, Sintef MiNaLab*

4.2 Challenges with various transducer materials and designs. *Jean François Gelly, PDI/ GE probes*

4.3 Silicon plate modes; *Kamal Raj Chapagain, Arne Rønnekleiv, NTNU*

4.4 Acoustic mode control; The requirements and how they can be met, *Kamal Raj Chapagain, Arne Rønnekleiv*

*Coffee break (10 minutes)*

### 16.00 V: Planned future activities at NTNU

6.1 CMUT-2; Design and implementations. *Kjersti Midtbø, NTNU*

6.2 MUSIC. The next Strategic University Program (SUP) on probe technology at the Department of electronics and telecommunications at NTNU, *Trond Ytterdal, NTNU*.

17.00 VII: Discussions; Future directions and priorities

17.30     *The end*