Ultrasound Institute, Kaunas University of Technology

http://www.ultrasonics.ktu.lt

The **Ultrasound Institute** represents majority of ultrasonic research groups at Kaunas University of Technology. The Ultrasound Institute has experience in different areas of various applications of ultrasonic techniques for aerospace industry, nuclear plants, space research, monitoring of various manufacturing processes, ultrasonic flow measurements of gases and liquids, development of non-destructive testing techniques for composite materials, journal and sleeve bearings, components, used at nuclear plants and etc.

Research activities: ultrasonic NDT&E, ultrasonic industrial measurements, simulation and signal processing in ultrasonic measurements, investigation of material properties by ultrasonic techniques.

Current European projects:

• EC FRAMEWORK 6 project MINAEAST-NET, No. 510470 "Micro and Nanotechnologies going to EASTern Europe through NETworking"

• EC FRAMEWORK 6 project MICROSCAN, No. SME-1 508616. "Development of comprehensive in-line quality control system for printed circuit board assemblies"

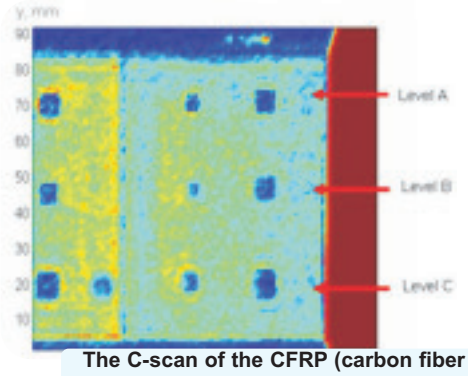
• EC FRAMEWORK 6 project TANK INSPECT, COOP-CT-2003-508486"Condition monitoring of large oil and chemical storage tanks using ultrasonic guided wave tomography without the need to empty and clean the tanks"

• EC FRAMEWORK 5 project NANOSCAN, G4ST-50288 "New and novel systems for composite aircraft NDE"

Facilities: Multichannel ultrasonic data acquisition and analysis system SUMIAD; Ultrasonic data evaluation system MASERA; Hewlett & Packard 8000 work station and data analysis software CIVA; Experimental set-up for high temperature (500oC) ultrasonic measurements; Ultrasonic data acquisition system with 4-channel precise scanner; Ultrasonic laser interferometer for precise ultrasound velocity measurements.

Other potential partners in Lithuania

- **Institute of Physical Electronics of Kaunas University of Technology, Contact person:** Sigitas Tamulevièius, e-mail: **Sigitas.Tamulevicius@ktu.lt**, webpage: **http://www.fei.lt**
- **Ultrasound institute, Kaunas University of Technology, Contact person**: Elena Jasiuniene, e-mail: **elena.jasiuniene@ktu.lt,** webpage: **http://www.ultrasonics.ktu.lt**
- **Research Centre for microsystems and Nanotechnology, Kaunas University of Technology, Contact person**: Valentinas Snitka, e-mail: **vsnitka@ktu.lt,** webpage: **www.microsys.ktu.lt**
- **Laser Research Center, Biophotonics group, Vilnius University, Contact person:** Ricardas Rotomskis, e-mail: **ricardas.rotomskis@ff.vu.lt,** webpage: **www.ff.vu.lt/biophotonics/riro.html**
- **Institute of Biotechnology, Contact person:** Algimantas Pauliukonis, e-mail: **office@ibt.lt,** webpage: **www.ibt.lt**
- **Semiconductor Physics Institute, Contact person:** Steponas Asmontas, e-mail: **asmontas@uj.pfi.lt,** webpage: **www.pfi.lt**



The C-scan of the CFRP (carbon fiber reinforced plastic) 9mm panel with delamination type defects

Virtual pannel of ultrasonic distance and displacement meter with data illustrating spatial resolution

NetMED - Micromechatronics for biomedical industry

'Hands-on PDMS (polydimethylsiloxane**) microfluidic device fabrication for biomedical applications'**

This course will take place at EPFL Lausanne on 17 October 2005 (for details see **www.netmed-eu.org**).

The one day course will cover PDMS based microfabrication methods for microfluidics, and will mostly be "hands-on". It will also discuss design issues and introduce some pressure driven microfluidics examples and biomedical applications. At the end of the day the participants will have a feeling for design, fabrication and use of PDMS based fluid chips.

This course **continue** a series of events dedicated to facilitating the use of modern techniques or applications in the biomedical industrial sector, **organized by** the FP5 Project netMED (Micromechatronics for biomedical industry) - **G7RT - CT-2002-05113**.

The netMED Project (**www.netmed-eu.org**) is co-ordinated by Scuola Superiore Sant'Anna (SSSA), **under the** scientific responsibility of **Prof. Paolo Dario, professor of Biomedical Robotics and coordinator of the** CRIM (**Center of Research in MicroEngineering**). **A total of 9 partners distributed in 6 European countries constitute the Consortium**.

1. *Scuola Superiore di Studi Universitari e di Perfezionamento Sant'Anna (SSSA)*, Italy
2. *Katholieke Universiteit Leuven (KULeuven)*, Belgium
3. *Institute of Healthcare Industries, Steinbeis University, (STI-HI)*, Germany
4. *Università di Pisa, Divisione Chirurgia Generale e Trapianti (UniPi)*, Italy
5. *Swiss Federal Institut of Technology, Lausanne (EPFL)*, Switzerland
6. *Centre National de la Recherche Scientifique (LPMO-CNRS)*, France
7. *Institut für Medizintechnik und Biophysik, Forschungszentrum Karlsruhe (IMB-FZK)*, Germany
8. *Consejo Superior de Investigaciones Cientificas (CSIC),* Spain
9. *El.En S.p.A.*, Italy

The geographical "dispersion" of the Consortium partners allowed the Project to play both an international and a "local" role with an activity of dissemination and proactive contacts effectively "designed" for territorial needs and demands.

As can be seen netMED includes medical partners whose contribution was fundamental in assisting the design of new MM-based biomedical devices, evaluating their medical acceptability and solving actual clinical problems.

Core technologies offered by the Consortium are precision **and ultraprecision fabrication technologies suitable for machining 3D miniature and micro parts out of different materials**, and usable for rapid development of prototypes as well as for small volume manufacturing.

Services useful to transform concepts into prototypes and then even into marketable products are offered to the user through networking **netMED** with other European initiatives, such as EUROPRACTICE Competence, Centres and Manufacturing Clusters, R&D centres (companies, universities and research institutes) and with small and large scale manufacturers:

- **Evaluation services (technical, medical, market, financial, etc.)**
- **Business (commercialization) & financial services**

Micromechatronic design and prototyping

- **Simulation and experimental medical testing**
- **Training**
- **INCUBATION SERVICES: create spin-off companies within netMED**
- **NEW SERVICES offered to customers**

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