

## International Symposium

« Non Destructive Testing and Evaluation: Physics, Sensors,  
Materials and Information »

Monday, Tuesday 21st and 22nd of November

Ecole Centrale de Nantes IRCCyN

The Academic network ECND-PdL (Non Destructive Testing and Evaluation in the Region "Pays de la Loire"), which consists of 15 research laboratories, in the Region (<http://ecnd-pdl.fr>) is organizing an International Symposium dedicated to scientific advances in recent research in "Non Destructive Testing and Evaluation : physics, sensors, materials and information". The symposium will be held on the 21st and 22nd of November 2011 from 9:00h to 18:00h at "Ecole Centrale de Nantes". Through conferences covering different scientific areas, this symposium aims to show the relevance of these methods for the characterization of materials and structures and to promote interchangeability favoring the interaction between physics, mechanical engineering, acoustics, signal processing (...) in the Region Pays de la Loire, but also at European and International levels. Among the invited speakers (See further the detailed program) :

*Jennifer Michaels, Georgia Tech, USA*

*Tomas Olofsson, Uppsala University, Sweden,*

*Jan van der Kruk, Institute of Bio and Geosciences, Jülich, Germany*

*Marco Scalerandi, Ecole Polytechnique de Turin, Italy*

*Vitaly Gusev, IUF, Université du Maine Le Mans*

*Christian Pichot du Mezeray, Université Nice-Sophia Antipolis, CNRS*

*Pierre Yves Joubert, ENS Cachan, CNRS*

Other colleagues from Region Pays de la Loire will also contribute to this event : J. Idier CNRS and Ecole Centrale de Nantes, G. Berthiau IREENA Université de Nantes Saint Nazaire, D. Leduc IREENA Nantes, F. Schoef GEM Université de Nantes, V. Métivier Subatech Ecole des Mines de Nantes, F. Treysede from IFSTTAR Nantes, R. El Guerjouma LAUM Université du Maine Le Mans,... These days are also an opportunity for doctoral students and post-doctorals to present their work in a poster session. This symposium could also offer opportunities to have some exchanges with the industrial sector.

Participation in the workshop is free, including coffee break and lunch, pre-registration is required to facilitate the organization : thank you for sending an email to : [agnes.tabellout@univ-lemans.fr](mailto:agnes.tabellout@univ-lemans.fr) specifying your name, organization and unity research.



## Monday November 21th

**9h00-9h30 Welcoming**, Ecole Centrale de Nantes, Region Pays de la Loire

**9h30-10h10** "Full-waveform modeling and inversion of high frequency electromagnetic data"

**Jan Van Der Kruk**,

Institute of Bio and Geosciences, Jülich, Germany

**10h10-10h40** "Fiber Optic Sensors for material and structural analysis: state of the art and challenges"

**D. Leduc**

IREENA Université de Nantes, Saint Nazaire.

**10h40 -11h00 : coffee break**

**11h-11h40** " Laser Ultrasonics: Recent Achievements and Perspectives"

**V. Gussev**

Institut Universitaire de France, LPEC Université du Maine, CNRS, Le Mans.

**11h40-12h** "Methods of digital Fresnel holography for full field, contact less and non destructive inspection of structures and materials".

**P. Picart**

Université du Maine, CNRS, Le Mans

**12h-12h30** "Development of an Ultra-Wideband Measurement System for Subsurface Imaging. Application to the Vaucluse Karst Aquifer"

**J.-Y. Dauvignac, N. Fortino, F. Perret, S. Gaffet, M. Auguste, T. Monfret, G. Senechal, D. Rousset, M. Yedlin, Ch. Pichot**

Université Nice-Sophia Antipolis, CNRS

**12h30 -14h Lunch**

**14h-14h40** "T. Olofsson and T. Stepinski, Frequency-domain SAFT for the Ultrasonic Inspection of Coarse Grained Metals"

**T. Olofsson**

UPSSALA University, Sweeden

**14h40-15h10** "Ultrasonic non destructive testing based on sparse deconvolution"

**J. Idier**

IRCCyN Ecole Centrale de Nantes, CNRS

**15h40- 16h10** " Recent progress in modeling the propagation of elastic guided waves in civil engineering cables"

**F. Treyssède and L. Laguerre,**

IFSTTAR Nantes

**16h10-18h coffee break and POSTER SESSION**

**18h Closing of the day**



## Tuesday November 22th

**9h00-09h30** "Quantitative evaluation of contactless impact echo for nondestructive assessment of void detection within tendon ducts" **F. Schoefs, O. Abraham\***, GeM Université de Nantes, \*IFSTTAR Nantes.

**9h30-10h10** "Preisach-Mayergoyz Models of elastic hysteresis and application in Non Destructive Testing and Evaluation" **M. Scalerandi** Applied Science and Technology Department Politecnico di Torino, Torino, Italy

**10h10-10h30 : coffee break**

**10h30-11h10** "Ultrasonic Guided Waves in Plates: Challenges and Methods for in situ Nondestructive Evaluation" **Jennifer E. Michaels**, Georgia Institute of Technology Atlanta, GA USA

**11h10-11h40** " Damage Characterization by Means of NonLinear Acoustics and Acoustic Emission : New Trends for Materials Non Destructive Testing and Structural Health Monitoring". **R. EL Guerjouma, M. Bentahar, J.H. Thomas and A. El Mahi** LAUM, Université du Maine, CNRS, Le Mans

**11h40-12h10** "Toward Non Destructive density measurement using X-ray scattering for roadway inspection" **V. Metivier** SUBATECH, Ecole des Mines de Nantes

**12h10 -14h Lunch**

**14h-14h40** "Towards a global approach for the design of electromagnetic NDT systems" **P.Y. Joubert**, SATIE, ENS Cachan, CNRS

**14h40-15h10** " Nanosensors for structural monitoring in civil engineering: New insight on promising carbon nanotubes devices and contribution to the smart city concept" **B. Lebental** IFSTTAR, Paris

**15h10-15h40** "Characterization of composites carbons by inversion of inducto-thermal data " **G. Berthiau**, IREENA, Université du Nantes, Saint Nazaire

**15h40-16h00: coffee break**

**16h00-16h30** " Thermal compensated Coda wave interferometry analysis to study the direct tensile behavior of concrete " **Yuxiang Zhang(a)** ECND-PdL PhD student, **Odile Abraham (b)**, **Vincent Tournat (a)**, **Frédéric Grondin (e)**, **Ahmed Loukili (e)**, **Alain Le Duff (c)**, **Bertrand Lascoup(d)**, **Olivier Durand (a)** (a) LAUM Université du Maine CNRS, (b) IFSTTAR Nantes, (c) ESEO Angers, (d) ESTACA Laval, (e) GeM Ecole Centrale de Nantes

**16h30-17h00** "Optimization of NDT measurements for structural reliability assessment in case of spatial variability" **T.V. Tran (a)** ECND-PdL PhD student, **F. Schoefs (a)**, **E. Bastidas (a)**, **G. Villain (b)**, **X. Derobert (b)**, **J. Idier (c)** , (a) GeM Université de Nantes, (b) IFSTTAR Nantes, (c) IRCCYN, Ecole Centrale de Nantes

**17h closing of the symposium - cocktail**

## How to join the symposium?

By Nantes train station (North Exit)

Take the Tramway :

\* **Line 1** direction "commerce" get off "commerce" \* and take another line : **line 2** direction "Orvault Grand val" get off "Ecole Centrale de Nantes - Sup de Co". At the entrance ask for IRCCyN.