

Table of Contents

Preface

International Scientific Committee

Workshop Award

Group Photo

Distribution of the Workshop participation

1 • *Inaugural Session*

- 1.1 • **Review of some measurement techniques involved in modern NDE**
(Keynote lecture)
R. Stoessel, K. Pfleiderer, H. Gerhard, S. Predak, N. Krohn, A. Dillenz,
Th. Zweschper, G. Busse
Institute for Polymer Testing and Polymer Science - NDT (IKP-ZFP)
University Stuttgart (Germany)

2 • *Tutorials (invited session)*

- 2.1 • **Deconvolution of NDE signals**
T. Olofsson, T. Stepinski
Uppsala University (Sweden)
- 2.2 • **Inverse problems by Genetic Algorithms: application to the photothermal depth profiling**
R. Li Voti
Università di Roma “La Sapienza” (Italy)
- 2.3 • **Artificial intelligence in NDE**
C. H. Chen
University of Massachusetts Dartmouth (USA)
- 2.4 • **Ion Implantation Dose High Resolution Monitoring in Si Wafers using Laser Infrared Photothermal Radiometry with Lock-in Common-Mode-Rejection Demodulation**
A. Mandelis, F. Rabago
University of Toronto (Canada)

- 2.5 • Reliability Investigations of NDE signals**
C. Müller, U. Zscherpel, U. Ewert, M. Scharmach, C. Bellon, G. R. Tillack,
Federal Institute for Materials Research and Testing - BAM (Germany)
- 2.6 • Nonlinear acoustic imaging and quantitative acoustic microscopy**
R. Gr. Maev
University of Windsor (Canada)
- 2.7 • Data fusion methods for nondestructive evaluation applications***
S. Udpa
Iowa State University (USA)
- 2.8 • Applications of Neural Networks to NDE ****
L. Udpa
Iowa State University (USA)

3 • Signal Processing I

- 3.1 • Bayesian separation of lamb wave signatures**
S. W. Kercel, M. B. Klein, B. Pouet
Oak Ridge National Laboratory (USA), Lasson Technologies (USA)
- 3.2 • Deconvolution of thermography images obtained on corroded parts by using the thermal modulation transfer function (TMTF)**
J.-C. Krapez
ONERA (France)
- 3.3 • A multiscale approach for microwave inverse scattering using edge-preserving regularization**
A. Baussard, D. Premel
École Normale Supérieure de Cachan (France)
- 3.4 • Signal processing techniques for the improvement of the open-cracks detection using photothermal camera**
S. Hermosilla-Lara, P.-Y. Joubert, D. Placko, F. Lepoutre, M. Piriou
Technical Center of Framatome, École Normale Supérieure de Cachan (France)
Office National des Études et de la Recherche Aérospatiale (France)

4 • Signal Processing II

- 4.1 • Analysis of pulsed-eddy current signals using time-frequency method**
M. S. Safizadeh, B. A. Lepine, D. S. Forsyth, A. Fahr
National Research Council Canada (Canada)

* abstract only, ** no paper made available at time of publication

- 4.2 • Extraction of defect signals in eddy current NDE using a DWT based method**
P.-Y. Joubert, A. Baussard, Y. Le Bihan
École Normale Supérieure de Cachan (France)
- 4.3 • Improving the differential probes detection capability by using absolute signature estimation**
M. Bentoumi, P. Aknin, G. Bloch, S. Talbi
INRETS, CRAN-ESSTIN, RATP-ESE (France)
- 4.4 • Use of Singular Value Decomposition in the photothermal depth profiling**
R. Li Voti, M.C. Larciprete, G.L.Liakhov, S. Paoloni, C. Sibilia, M. Bertolotti
University di Roma “La Sapienza” (Italy), Technical University of Moldova (Italy)
- 4.5 • Evaluation techniques of MRTD and MRTDF in Relation to Detection Limit of Material Flaws**
A. Kamoi, Y. Okamoto
University of East Asia (Japan)
- 4.6 • A generalized Approach to Signal Processing for Active Thermography**
S.M. Shepard, J.R. Lhota, T. Ahmed, B.A. Rubadeux
Thermal Wave Imaging (USA)
- 4.7 • Characterization of a Moving Surface Roughness by Backscatterer Ultra-Sound Performed with Time-frequency Analysis and High Order Statistics**
S. Dos Santos, P. Maréchal, J.-M. Girault, F. Vander-Meulen
University François-Rabelais (France)
- 4.8 • Optimal Design of Radioactive Particle Tracking Experiments for Flow Mapping in Opaque Multiphase Reactors***
S. Roy, F. Larachi, M.H. Al-Dahhan, M. P. Dudukoviae
Washington University (USA), University Laval (Canada)

5 • Advances in NDE Techniques and Applications I

- 5.1 • First article inspection based on industrial X-ray computed tomography**
Th. Lüthi, A. Flisch, J. Hofmann, A. Obrist, J. Wirth
Swiss Federal Laboratories for Materials Testing and Research-EMPA
(Switzerland)
Basel Institute of Technology (FHBB) (Switzerland)

- 5.2 • GeoMetric Factors Influencing Signal Attenuation in Ultrasonic Spot Weld Testing**
D. Roberts
Welsh Technology Centre (UK)
- 5.3 • Pulsed photothermal radiometry for plastic qualification regarding laser beam weldability**
H. Haferkamp, A. von Busse, M. Goede, M. Hustedt
Laser Zentrum Hannover e.V. (Germany)
- 5.4 • A MAP-EM half-quadratic regularization for quantitative ECT&TCT on nuclear wastes**
R. Thierry, J.-L. Pettier
Commissariat à l'Énergie Atomique (CEA) de Cadarache (France)
- 5.5 • Radiometric Steel Hardness Measurements Influence of Surface Roughness**
H.-G. Walther, D. Fournier, J.C. Krapez, M. Luukkala, B. Schmitz,
C. Sibilia, H. Stamm, J. Thoen
Institut für Optik und Quantenelektronik (Germany), ESPCI (France),
ONERA (France), University Helsinki, (Finland), ILM Ulm (Germany),
University di Roma "La Sapienza" (Italy), JRC (Italy),
University Leuven (Belgium)
- 5.6 • Transient thermography simulation by SPICE**
S. Tuli, R. Gupta
Indian Institute of Technology Delhi (India)
- 5.7 • Homogeneity testing analysis by application of energy and entropy balance**
M. Beihaqi, S. Belattar, A. Obbadi, S. Sahnoun
Faculté des sciences (El Jadida, Marocco)
- 5.8 • Wood inspection by infrared thermography**
A. Wyckhuyse, X. Mal dague
Université Laval (Canada)
- 5.9 • Imaging of multi-layered conductive components with pulsed eddy currents ***
Y. A. Plotnikov, S. C. Nath, C. W. Rose
General Electric Corporate Research and Development (USA)

6 • Advances in NDE Techniques and Applications II

- 6.1 • Detection of inclusions in steel slabs using laser-ultrasonic SAFT imaging**
D. Lévesque, B. Campagne, A. Blouin, J.-P. Monchalin
National Research Council of Canada (Canada)
- 6.2 • Crack detection and imaging using ultrasonic guided waves and EMATs**
A. Chahbaz, A. Cyr, R. Sicard, J. Goyette, D. Zellouf
Tektrend International, NDT Technology and Development (Canada)
University of Quebec at Trois-Rivières (Canada)
- 6.3 • Measurement of temperature distributions of liquid packing bags made of plastic films during heat sealing using infrared thermography**
E. Umezaki, H. Yamaguchi
Nippon Institute of Technology (Japan)
- 6.4 • Transfer function method for thermal diffusivity measurement by IR thermography**
S. Marinetti, P.G. Bison, E. Grinzato, C. Bressan, A. Mazzoldi
CNR-ITEF (Italy), CNR-ISDGM (Italy)
- 6.5 • Reconstruction of thermal diffusivity distribution at a microscopic scale from modulated photothermal experiment**
J. Jumel, N. Terrien, O. Arnould, J.-C. Krapez, F. Lepoutre
ONERA (France)
- 6.6 • NDE based on the analysis of ultrasonic waves nonlinear interaction in inhomogeneously predeformed material**
A. Ravasoo
Institute of Cybernetics at Tallinn Technical University (Estonia)
- 6.7 • Residual methanol efficient burned as a substitute of intermediate fuel oils**
V. V. Ghia
Institute of Thermal Engines (Romania)
- 6.8 • Laser optical acoustic sources for improved ultrasonic testing ****
B. B. Djordjevic, D. Cerniglia
Johns Hopkins University (USA)

7 • Advances in NDE Techniques and Applications III

- 7.1** • Non-destructive evaluation of the stability threshold of geomaterials
M.-P. Luong
CNRS UMR (France)
- 7.2** • Two-dimensional analysis of thermal NDT by the numerical method of control volumes
A. Obbadi, S. Belattar, M. Beihaci, A. Tmiri, A. Ballouti
Faculté des sciences (El Jadida, Marocco)
- 7.3** • Raw Materials Production and Advances in Rocks NDE
V. D. Vladimirov
Sofia University (Bulgaria)
- 7.4** • Non destructive testing of prestressed tendons by magnetoscopy in concrete structures
M. Klein, B. de Halleux, X. Maldague
Université Laval (Canada)

List of participants with complete affiliation

Author index

Index