

5th International Conference on electromagnetic Near-field Characterization and Imaging (ICONIC), Rouen, FRANCE, Nov. 30-Dec. 2, 2011

## ICONIC 2011 PROGRAM

### Wednesday, November 30, 2011

9:00-9:30 am	Welcome and Registration
9:30-10:00 am	Opening session
10:00-10:40 am	<i>Invitee speaker 1: "Mid-infrared near-field microscopy applied to plasmonics"</i> By Prof. Yannick De Wilde Chairman : R. DuBroff & T. Lasri
BREAK	
11:00am-12:40pm	<i>Session 1: NF imaging process</i> Chairman: F. Las-Heras & G. Devauchelle
LUNCH	
2:00-3:20 pm	<i>Session 2: Microwave NF probe characterization</i> Chairman: P. Eudeline & A. Randazzo
3:25-4:20 pm	<i>Session 3: Optic/nanophotonic analyses</i> Chairman: T. Lasri & A. Vella
3:25-5:30 pm	<b>POSTER SESSION</b> Chairman: B. Ravelo & A. Randazzo

### Thursday, December 1, 2011

8:30-9:20 am	Welcome and Registration
9:20-10:20 am	<i>Session 4: RF &amp; power system radiation</i> Chairman: M. Kadi & P. Eudeline
BREAK	
10:40am-12:00pm	<i>Session 5: Plane-wave NF characterization</i> Chairman: R. DuBroff & D. Pissort <i>Session 6: EMC &amp; NF couplings</i> Chairman: T. Mager & F. Las-Heras
LUNCH	
1:15-1:55 pm	<i>Invitee speaker 2: "Exposure on near-field: Modeling and future challenge"</i> By Dr. Azeddine Gati Chairman: B. Ravelo & M. Kadi
1:55-3:55 pm	<i>Session 7: Probe/antenna design and radars</i> Chairman: A. Randazzo & D. Pissort <i>Session 8: NFC technique</i> Chairman: R. DuBroff
BREAK	
4:00-7:30 pm	<i>Social event: Visit of the old town of Rouen</i>
7:30pm-11.00pm	<i>Diner Gala</i>

### Friday, December 2, 2011

8:30-9:00 am	Welcome
9:00-9:40 am	<i>Invitee speaker 3: "Nanoaperture antennas to enhance optical spectroscopies"</i> By Prof. Jérôme Wenger Chairman: B. Deconihout & T. Mager
10:00-11:40 am	<i>Session 9: Numerical computation NF-methods</i> Chairman: D. Pissort & B. Ravelo
BREAK	
11:50am-12:10pm	Student paper awards
Closing session	
LUNCH	

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# ICONIC 2011 PROGRAM

*Wednesday, November 30, 2011*

OPENING SESSION (Amphi CHARPAK) / 09.00 am – 10.40 am

09.00 am – 09.30 am

Welcome and Registration

09.30 am – 10.00 am

Welcome & organization/program of ICONIC 2011  
*Eric Durieux, Guillaume Devauchelle, Director of ESIGELEC/IRSEEM EA 4353, R&D Director of VALEO, France*  
*Blaise Ravelo (Scientific committee chair)*

10.00 am – 10.40 am

**Invitee speaker 1 / Chairman : R. DuBroff & T. Lasri**  
 Mid-infrared near-field microscopy applied to plasmonics  
*By Prof. Yannick De Wilde, LOP, ESPCI, CNRS UPR A0005, Univ. Pierre & Marie Curie, Paris VI, France*

Session 1: NF imaging process (Amphi CHARPAK) / Chairman: F. Las-Heras & G. Devauchelle / 11.00 am – 12.40 am

11.00 am 11.20 am	1A	A near-field localization method for cylindrical buried objects	<i>Simone Meschino, Lara Pajewski, Giuseppe Schettini – Roma Tre University – Italy</i>
11.20 am 11.40 am	1B	A Banach regularization method for electromagnetic imaging#	<i>Claudio Estatico, Alessandro Fedeli*, Matteo Pastorino*, Andrea Randazzo*, Department of Physics and Mathematics, University of Insubria, *DIBE – University of Genoa – Italy</i>
11.40 am 12.00 pm	1C	The PZMI and neural network to ameliorate the convergence of electromagnetic inverse method	<i>Saidi Sofiene*, Jaleleddine Ben Hadj Slama, David Baudry*, LSE ENISo – Tunisia, *IRSEEM – France</i>
12.00 pm 12.20 pm	1D	Near-field characterization of scatterer objects for profile reconstruction	<i>Cebrián García González, Yuri Álvarez López, Fernando Las-Heras, Universidad de Oviedo – Spain</i>
12.20 pm 12.40 pm	1E	Microwave imaging system for cylindrical structures	<i>Asser Qaddoumi, Soudeh Haydari Nasab, Mohammad Asefi, Lutfi Al-Basha, American University of Sharjah – United Arab Emirates</i>

*# Nominated best student paper*

Wednesday, November 30, 2011

Session 2: Microwave NF probe characterization (Amphi CHARPAK) / Chairman: P. Eudeline & A. Randazzo / 2.00 pm – 3.20 pm

2.00 pm 2.20 pm	2A	Wide-band near-field microwave microscope#	<i>Kamel Haddadi, Tuami Lasri, Hind Bakli, Institut d'Electronique, de Microélectronique et de Nanotechnologie – UMR-CNRS 8520, Av. Poincaré – Villeneuve d'Ascq, Lille, France</i>
2.20 pm 2.40 pm	2B	Utilization of direct antenna modulation to improve capacity performance of an inductively coupled near field communication system	<i>Umar Azad, Yuanxun Wang, Electrical Engineering Department – University of California – Los Angeles – USA</i>
2.40 pm 3.00 pm	2C	Nondestructive inspection of wood materials by a microwave imaging approach – experimental results	<i>Manuela Maffongelli, Ricardo Monleone, Matteo Pastorino*, Samuel Poretti, Andrea Randazzo*, DTI – University of Applied Sciences of Southern Switzerland, *DIBE – University of Genoa; Andrea – Italy</i>
3.00 pm 3.20 pm	2D	Near field probe correction using least squares filtering algorithm	<i>Moutaouekkil Mohammed Anisse*, Ziyat Abdelhak, Dominique Picard, Serhir Mohammed, *Faculty of Sciences – Oujda, Morocco, SUPELEC – France</i>

# Nominated best student paper

Session 3: Optic/nanophotonic analyses (Amphi CHARPAK) / Chairman: T. Lasri & A. Vella / 3.25 pm – 4.25 pm

3.25 pm 3.45 pm	3A	Electro-optic sensors for specific absorption rate measurements	<i>Shuo Zhang, Sebastien Euphrasie, Pascal Vairac, Bernard Cretin, FEMTO – ST – France</i>
3.45 pm 4.05 pm	3B	Measurement of 3D location, size, and refractive index of spherical particles by near field digital holography at rainbow angle	<i>Sawitree Saengkaew<sup>1</sup>, Siegfried Meunier-Guttin-Cluzel<sup>1</sup>, Xue Cheng Wu<sup>2</sup>, Ling Hong Chen<sup>2</sup>, Denis Lebrun<sup>1</sup>, Marc Brunel<sup>1</sup>, Sébastien Coëtmellec<sup>1</sup>, Gerard Gouesbet<sup>1</sup>, Ke Fa Cen<sup>2</sup>, Gerard Grehan<sup>1</sup>, <sup>1</sup>CORIA – UMR CNRS 6614 – Univ. INSA/Rouen – France, <sup>2</sup>State Key Laboratory of Clean Energy Utilization – Zhejiang University – China</i>
4.05 pm 4.25 pm	3C	Micropipe flow visualization using digital in-line holographic microscopy	<i>Clément Remacha, Sébastien Coëtmellec, Denis Lebrun, Marc Brunel, CORIA – UMR CNRS 6614 – Univ. INSA/Rouen – France</i>

Wednesday, November 30, 2011

POSTER SESSION (GROUND FLOOR) – Wednesday, Nov. 30, 2011 / Chairman: B. Ravelo & A. Randazzo / 3.25 pm – 5.30 pm

SP1	Reconstruction of separate scatterers by a multiscale approach to microwave imaging based on the electric field integral equation	<i>Giacomo Oliveri, Andrea Massa, Andrea Randazzo*, Matteo Pastorino*, Claudio Estatico**, ELEDIA Research Group @ DISI - University of Trento, *DIBE - University of Genoa, **Department of Physics and Mathematics, University of Insubria - Italy</i>
SP2	Preliminary assessment of a contrast source formulation for the iterative multiscale reconstruction of cylindrical objects in electromagnetic imaging	<i>Giacomo Oliveri, Andrea Massa, Andrea Randazzo*, Matteo Pastorino*, Claudio Estatico**, ELEDIA Research Group @ DISI - University of Trento, *DIBE - University of Genoa, **Department of Physics and Mathematics, University of Insubria - Italy</i>
SP3	Direct visualization of conductivity of composite materials by a near-field scanning microwave microscope	<i>Carnis Jerome, Arsen Babajanyan, Tigran Abrahamyan, Harutyun Melikyan, Jongchel Kim, Kiejn Lee*, Department of Physics and Basic Science Institute for Cell Damage Control - Sogang University - Seoul 121-742 - Republic of Korea, Barry Friedman - Department of Physics - Sam Houston State University - Huntsville - Texas 77341 - USA, Didier Trichet, Annick Perronnet, Gerard Berthiau, IREENA, 37 Boulevard de l'Universite, BP-406, 44602 Saint-Nazaire Cedex, France</i>
SP4	Continuous monitoring of adhesives curing with a microwave sensor	<i>Beatriz Garcia-Banos, Jose Catala-Civera, Pedro Plaza-Gonzalez, Jose Gutierrez-Cano, Univ. Polit. Valencia - Spain</i>
SP5	Capacity performance of air-air and ocean-ocean inductively-coupled near-field communication link	<i>Umar Azad, Yuanxun Wang, Electrical Engineering Department - University of California - Los Angeles - USA</i>
SP6	Modeling of electromagnetic radiation and coupling between components and transmission lines	<i>Hanen Shall, Laurent Leyssenne, Priscila Fernandez-Lopez, David Baudry, IRSEEM / ESIGELEC - France</i>
SP7	Study of the transmission line coupling with near-field excitation and its effect on the LNA performance	<i>Ali Alaeddine, M. Kadi, K. Daoud*, IRSEEM / ESIGELEC - France, *GPM/UMR 6634 CNRS, Rouen University, France</i>
SP8	Near-field/near-field transform in frequency domain with PWS method	<i>Yang Liu, Blaise Ravelo, Priscila Fernandez-Lopez, David Baudry, Jaleddine Ben Hadj Slama*, IRSEEM/ESIGELEC - France, *ENISo - Tunisia</i>
SP9	Compaction estimation of asphalt using high frequency electromagnetic methods	<i>Bo Li, Cyrille Fauchard, Laurent Laguerre, Nabil Benjelloun*, Belhacène Mazari*, CETE - NC - France, *IRSEEM / ESIGELEC - France</i>
SP10	Numerical modeling of radiated emissions from indoor powerline communications	<i>Vesna Arnautovski Tosheva, Khalil El Khamlichi Drissi, Kamal Kerroum, Blaise Pascal University Clermont Ferrand - France</i>
SP11	Hardening of electrical and electronic installations for industry, medicine and service industry	<i>Patrice Joyeux, Docteur Ingénieur Développement - Hager Group Obernai - France, Daniel Soleil - Bureau d'Etudes CEMS, 801 Route d'Eyguières, 13560 Sénas - France. Mathieu Ferrino, Chef de Projets Electrotechnique - Cap Ingelec - France, George Zeigler, SPGS, Inc. Mansfield - Ohio - USA</i>
SP12	Improvement of EMC near-field measurements with an electro-optic test bench	<i>David Chevallier, David Baudry, Anne Louis, IRSEEM / ESIGELEC - France</i>
SP13	Plane wave spectrum expansion from near-field measurements on non-planar lattices	<i>Christian Reinhold*#, Christian Hangmann#, Thomas Mager#, Christian Hedayat#, Ulrich Hilleringmann*#, *Sensor Technology Group - University of Paderborn, #Advanced System Engineering, Fraunhofer ENAS - Paderborn, Germany</i>

Thursday, December 1, 2011

Session 4: RF & power system radiation (Amphi CHARPAK) / Chairman: M. Kadi & P. Eudeline / 9.20 am – 10.20 pm

9.20 am 9.40 am	4A	Electrical rotating machine fault detection by low frequency near magnetic field analysis	<i>Olivier Chadebec, Laure-Line Rouve, G2ELab – CNRS – Grenoble – INP – France</i>
9.40 am 10.00 am	4B	Near-field microwave testing method for outdoor insulators using artificial neural network	<i>Nasser Qaddoumi, Ayman El-Hag, Yasser Saker, American University of Sharjah – The United Arab Emirates</i>
10.00 am 10.20 pm	4C	Contribution to the development of near-field measurements in time-domain. Application to power electronics systems	<i>Jaleleddine Ben Hadj Slama, Mimoun Wiem, David Baudry*, ENISo – Tunisia, *IRSEEM / ESIGELEC – France</i>

Session 5: Plane-wave NF characterization (Amphi ARMAND) / Chairman: R. DuBroff & D. Pissoort / 10.40 am – 12.00 pm

10.40 am 11.00 am	5A	NF-multifocused arrays using optimization	<i>Rafael Gonzalez-Ayestaran, Jana Alvarez, Jesús López-Fernández, Fernando Las-Heras, Universidad de Oviedo – Spain</i>
11.00 am 11.20 am	5B	Review on E-field computation method from H-near-field with PWS transform	<i>Yang Liu, Blaise Ravelo, Priscila Fernandez-Lopez, Adam Jastrzebski*, Jaleleddine Ben Hadj Slama**, IRSEEM / ESIGELEC – France, *School of Engineering and Digital Arts, University of Kent; **ENISo – Tunisia</i>
11.20 am 11.40 am	5C	Portable microwave system for dielectric characterization of powder and liquid materials	<i>Jose Catala-Civera, Felipe Penaranda-Foix, Beatriz Garcia-Banos, Antoni Canos, Univ. Polit. Valencia – Spain</i>
11.40 am 12.00 pm	5D	Review on time domain near-field analysis with PWS theory	<i>Yang Liu, Blaise Ravelo, Adam Jastrzebski*, Jaleleddine Ben Hadj Slama**, IRSEEM / ESIGELEC – France, *School of Engineering and Digital Arts, University of Kent, The United Kingdom, **ENISo – Tunisia</i>

Session 6: EMC & NF couplings (Amphi CHARPAK) / Chairman: T. Mager & F. Las-Heras / 10.40 am – 12.00 pm

10.40 am 11.00 am	6A	Local EM perturbations into CMOS ring oscillator#	<i>Francois Poucheret*, Philippe Maurine, Laurent Chusseau*, LIRMM, IES – France</i>
11.00 am 11.20 am	6B	Sensitivity study of the nearest-neighbor crosstalk for PCB interconnects	<i>Thomas Eudes, Blaise Ravelo, Anne Louis, IRSEEM / ESIGELEC – France</i>
11.20 am 11.40 am	6C	Comparison between hybrid methods in the optimization of radiated coupling calculation	<i>Rajkumar Elagiri Ramalingam, Mohamed Bensetti, Abhishek Ramanujan, Anne Louis, Blaise Ravelo, IRSEEM / ESIGELEC – France</i>
11.40 am 12.00 pm	6D	Reliability and robustness studies of SiC diodes through LF noise and EM emission measurements	<i>Patrick Denis##, Guillaume Coru#, Moncef Kadi#, Pascal Dherbécourt*, Kaouther Daoud*, GPM, UMR CNRS 6634, University of Rouen – FRANCE, #IRSEEM / ESIGELEC – France</i>

# Nominated best student paper

Thursday, December 1, 2011

Invitee speaker (Amphi CHARPAK) / Chairman: B. Ravelo & M. Kadi / 1.15 pm – 1.55 pm

1.15pm-1.55pm

Exposure on near-field: Modeling and future challenge

*Dr. Azeddine Gati, RD-RESA-ISS, Paris, France*

Session 7: Probe/antenna design and radars (Amphi CHARPAK) / Chairman: A. Randazzo & D. Pissort / 1.55 pm – 3.55 pm

1.55 pm 2.15 pm	7A	Calibration of active phased antenna array with near-field measurements	<i>Yeo-Sun Yoon*, Sung-Cheol Kang, Seung-Eui Lee, Dong-Jin Yeom, Dong-Hee Hong, Min-Joon Lee, Agency for Defense Development – Korea, Samsung Thales, South Korea</i>
2.15 pm 2.35 pm	7B	Millimetric near-field imaging experiment using a transition from rectangular waveguide to cylindrical surface wave guide	<i>Jean-Paul Guillet, Laurent Chusseau, Institut d'Electronique du Sud – France</i>
2.35 pm 2.55 pm	7C	Capacity performance of an inductively-coupled near-field communication link for thermal noise and natural interference limited scenarios	<i>Umar Azad, Yuanxun Wang, Electrical Engineering Department – University of California – Los Angeles – USA</i>
2.55 pm 3.15 pm	7D	Ultra wideband antenna for the near-field multi-probe system of scanning	<i>Semkin Vasily#, Tommi Laitinen*, #Saint-Petersburg State University of Aerospace Instrumentation – Department of Radiotechnics – Electronics and Communication – Russia, *Aalto University School of Electrical Engineering – Department of Radio Science and Engineering – 00076 AALTO – Finland</i>
3.15 pm 3.35 pm	7E	A novel UWB antenna with tunable notch function	<i>S. Abazari Aghdam, H. Mardani#, M. Nouri~, M. Golpour*, Dep. Of Electrical Engineering, Tehran University South Tehran Branch, Umria University#, University of Science &amp; Technology – Tehran~, University of Tarbiat Modares*, Tehran – Iran</i>
3.35 pm 3.55 pm	7F	Nano-antenna for NMR spectroscopy	<i>M. Akel, E. Nativel# , B. Aleman*, P. Gall-Borrut#, M. Zanca, A. Zettl*, C. Goze-Bac, L2C, IES# – CNRS University Montpellier 2 – France, Department of Physics*, Berkeley Lab., University of California, USA</i>

Session 8: NFC technique (Amphi ARMAND) / Chairman: R. DuBroff / 2.10 pm – 3.10 pm

2.15 pm 2.35 pm	8A	An inductively-coupled near-field power transmission system – The principle and experimental results#	<i>Umar Azad, Yuanxun Wang, Electrical Engineering Department – University of California – Los Angeles – USA</i>
2.35 pm 2.55 pm	8B	Semi-embedded RFID sensor networks for imaging applications#	<i>Marta Guardiola, Gemma Roqueta, Santiago Capdevila, Jordi Romeu, Lluís Jofre, Signal Theory &amp; Communications Department, University Politècnica de Catalunya (UPC) – Barcelona – Spain</i>
2.55 pm 3.15 pm	8C	Study of a near-field antenna module for real electromagnetic noise and reliability evaluations	<i>J.M. Dienot<sup>1,4</sup>, E. Batista<sup>2</sup>, J.L. Massol<sup>3,4</sup>, P. Chalimbaud<sup>3,4</sup>,<sup>1</sup>LABCEEM, Institut de Technologie, rue Lautréamont, F-65016 Tarbes, France, <sup>2</sup>ALSTOM Transports, rue du docteur Guinier, F-65600 Séméac, France, <sup>3</sup>CNRS-LAAS, 7 avenue du colonel Roche, F-31077 Toulouse, France, <sup>4</sup>Université de Toulouse – UPS – INSA – INP – ISAE, F-31077 Toulouse, France</i>

# Nominated best student paper

Friday, December 2, 2011

Invitee speaker 3 (Amphi CHARPAK) / B. Deconihout & T. Mager / 9.00 am – 9.40 am

9.00 am – 9.40 am

Nanoaperture antennas to enhance optical spectroscopies

*Prof. Jérôme Wenger, Institut Fresnel, CNRS, Aix-Marseille Université, Ecole Centrale Marseille, France*

Session 9: Numerical computation NF-methods (Amphi CHARPAK) / Chairman: D. Pissort & B. Ravelo / 10.00 am – 11.40 am

10.00 am  
10.20 am

9A

New approach to avoid local minima in the iterative Fourier method for phaseless near-field measurements

*J. Puskely\*, S. Costanzo\*\*, G. Di Massa\*\*, \*Dept. Of Radio Electronics Brno University of Technology – 61200 Brno – Czech Republic, \*\*Dipartimento di Elettronica – Informatica Sistemistica University of Calabria – 87036 Rende (CS) – Italy*

10.20 am  
10.40 am

9B

Fast evaluation of electric field Green's functions and their volumetric integrals for near field imaging applications

*Mehmet Çayören, Fjolla Shehu, Ali Yapar, İbrahim Akduman, Istanbul Technical University – Turkey*

10.40 am  
11.00 am

9C

Near-field scanning as an EMC debug tool: Example out of practice

*Bram Van Der Streeck#, Filip Vanhee#, Bart Boesman#, Davy Pissort#, Lieven Broucke\*, #Flanders' Mechatronics Engineering Center – KHBO – K.U. Leuven Association – Zeedijk 101, B8400 Oostende – Belgium, \*HMC International – E3 – laan 89 – B9800 Deinze – Belgium*

11.00 am  
11.20 am

9D

Optimisation of an inductive proximity sensor with regards to the side-metal-effect

*Frank Lebahn, Hartmut Ewald, University of Rostock – Germany*

11.20 am  
11.40 am

9E

Near-field solution to scattering by buried cylindrical targets

*Fabrizio Frezza, Lara Pajewski\*, Cristina Ponti\*, Giuseppe Schettini\*, Sapienza University, \*Roma Tre University – Italy*

CLOSING SESSION (Amphi CHARPAK)

11.50 am  
12.20 pm

Student paper awards

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