## 11th IEEE NMDC - Program

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<tr>
<th>October, 9&lt;sup&gt;th&lt;/sup&gt; 2016</th>
<th>October, 10&lt;sup&gt;th&lt;/sup&gt; 2016</th>
<th>October, 11&lt;sup&gt;th&lt;/sup&gt; 2016</th>
<th>October, 12&lt;sup&gt;th&lt;/sup&gt; 2016</th>
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</thead>
<tbody>
<tr>
<td>08:00 – 08:30 Registration</td>
<td>08:00 – 08:30 Registration</td>
<td>08:30 – 09:15 Plenary lecture</td>
<td>08:30 – 09:15 Plenary lecture</td>
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<tr>
<td>08:30 – 09:00 Welcome/Opening</td>
<td>09:00 – 09:45 Plenary lecture</td>
<td>08:30 – 09:15 Plenary lecture</td>
<td>09:45 – 10:45 Parallel sessions</td>
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<td>09:45 – 10:45 Parallel sessions</td>
<td>09:15 – 10:30 Parallel sessions</td>
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<tr>
<td>10:45 – 11:00 Coffee break (short)</td>
<td>10:30 – 11:00 Coffee break</td>
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<td>11:00 – 12:30 Parallel sessions</td>
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<tr>
<td>12:30 – 14:00 Lunch</td>
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<td>14:00 – 15:30 DL Parallel sessions</td>
<td>14:00 – 16:00 Poster session</td>
<td>14:00 – 15:30 DL Parallel sessions</td>
<td>14:00 – 15:30 DL Parallel sessions</td>
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<tr>
<td>15:30 – 16:00 Coffee break</td>
<td>16:00 – 19:00 Social excursion</td>
<td>15:30 – 16:00 Coffee break</td>
<td>15:30 – 16:00 Coffee break</td>
</tr>
<tr>
<td>18:00 – 20:00 Registration Welcome reception</td>
<td>16:00 – 18:00 Parallel sessions 18:30 – 19:30 Salle des Illustres</td>
<td>20:00 Conference Dinner</td>
<td>16:00 – 17:30 Parallel sessions 17:30 – 18:00 Closing remarks</td>
</tr>
</tbody>
</table>
Plenary speakers

Prof. Nancy A. Burnham
Department of Physics, Worcester Polytechnic Institute, 100 Institute Road, Worcester, MA 01609-2280, USA
Title: New looks at old (nano)materials with modern scanning probe techniques

Nancy Burnham graduated from the University of Colorado at Boulder in 1987 with a PhD in Physics. Her dissertation concerned the surface analysis of photovoltaic materials. As a National Research Council Postdoctoral Fellow at the Naval Research Laboratory, she became interested in scanning probe microscopy, in particular its application to detecting material properties at the nanoscale. She spent nine years abroad pursuing the mechanical properties of nanostructures and instrumentation for nanomechanics. She became an Associate Professor of Physics at WPI in January of 2000 where she teaches several undergraduate and graduate courses. Her research interests lie in the direction of nanoscience and engineering. She offers an undergraduate and graduate course in Atomic Force Microscopy, an important technique in this burgeoning interdisciplinary field, for which she is writing a book. Additionally, she organized the Minor in Nanoscience program at WPI. Nancy Burnham has been an invited, tutorial, or plenary speaker at over 50 conferences, author or co-author of over 80 publications with over 8400 citations (h-index 34); she is as well active in professional societies as, e.g., serving on the Nanometer Structures Committee of the IUVSTA and Treasurer of the Nanoscience and Technology Division of the AVS. She was the recipient of the 2001 Nanotechnology Recognition Award from the latter organization, was a 2002 Institute of Physics of Ireland Lecturer, and became a Fellow of the AVS in 2010. Two of her articles were featured among the 25 highlighted publications for the 25th anniversary of the journal Nanotechnology in 2014, out of nearly 12,000.

Prof. Jan Linnros
KTH Royal Institute of Technology, Electrum 229, SE-16440 Kista-Stockholm, Sweden
Title: Silicon at the nanoscale using lithography control: Nanowires, nanopores and quantum dots

Prof Jan Linnros received his Ph.D. in Physics (ion beam processing of materials) from Chalmers University of Technology (Göteborg, Sweden) in 1986. After a post-doc at Bell Labs, Murray Hill, he joined the Swedish Institute of Microelectronics in Stockholm to work on semiconductor material and device characterization. In 1993 he accepted a research position at Royal Institute of Technology and was appointed full professor in 2001. He is an active teacher and initiated/headed a master program in Nanoelectronics/Nanotechnology. He has published more than 200 scientific papers in international journals. He is also a cofounder of a company ‘Scint-X’ developing an imaging X-ray detector and of the company ‘Spin-Y’ developing an electron-spin filter. Current research interests include: Silicon nanostructures such as nanocrystals, nanowires, nanopores and associated nanofabrication methods including electrochemical etching and nanolithography, as well as X-ray imaging techniques. Recent projects include the use of silicon nanostructures in bio-molecule sensing (nanowires), DNA translocation through nanopores and silicon quantum dots for light emission. A main scientific break-through has been PL spectroscopy of individual silicon quantum dots.
Prof. Tony McNally is currently Chair Professor in Nanocomposites at the University of Warwick, UK. In 2013 he co-founded, with Professor Lord Bhattacharyya FREng FRS, the International Institute for Nanocomposites Manufacturing (IINM) and in 2015 the UK National Polymer Processing Centre (NPPC) and is serving as the first Director of both. He is leading a team of up to 50 academics and researchers (chemists, physicists, engineers and modellers) who are adopting a holistic approach to the study and manufacture of composites of polymers and 0D, 1D and 2D nanomaterials. Prior to this he was a Director of the Polymer Processing Research Centre (PPRC), Director of the Medical Polymers Research Institute (MPRI) and Director of Research for the Advanced Materials & Processing Research Cluster at Queen’s University Belfast, UK. He also worked in R&D in the medical device and transport industries for 6 years, latterly at board level, leading projects with a range of multinational companies. He has published widely and has held/holds a number of visiting academic positions in Australia, Europe and the USA. He is an advisor/assessor to several national and international funding agencies and research institutes, and sits on the editorial board of 6 journals. His current research interests are focused on; melt processing of polymer nanocomposites; functionalization of nanoparticles, including the use of ionic liquids to modify layered silicates and covalent/non-covalent functionalization of carbon nanotubes and graphene(s); polymer nanocomposite drug delivery; composites of polymers/metals with 0D, 1D and 2D nanomaterials; the use of magnetic/electric fields, solid-state and melt processing techniques to orientate nanoparticles in polymers; spinning using ionic liquids and mechanochemistry.
Nanotechnology Council Distinguished Lecturers

Prof. Yonhua Tzeng, IEEE Fellow
College of Electrical Engineering and Computer Science and Institute of Microelectronics at National Cheng Kung University, Tainan, Taiwan
Title: Diamond and graphene nanotechnology for energy storage and optoelectronic applications

Prof. Yonhua (Tommy) Tzeng is an IEEE Fellow and University Chair Professor of Institute of Microelectronics in the Department of Electrical Engineering, College of Electrical Engineering and Computer Science, at National Cheng Kung University, the second largest major research-intensive comprehensive university in Tainan, Taiwan with 22,000 students. Dr. Tzeng joined Auburn University in 1983, was promoted to be an Alumni Chair Professor of ECE and served as Associate Director of Alabama Micro/Nano Science and Technology Center. He retired from Auburn University in 2007 to serve as VP for Research at NCKU, where he was the founding EIC of an online magazine with close to two million readers. He has been a visiting professor at Cavendish Laboratory, Cambridge University, UK, Tokyo Institute of Technology, Japan and Argonne National Lab, USA.

Prof. James E. Morris, IEEE Live Fellow
Electrical & Computer Engineering
Portland State University
Portland, Oregon, USA
Title: Nanoparticle Thin Films: Fabrication, Structure and Properties

Prof. Jim Morris has been doing nanotechnology since before the term was invented. His M.Sc. research at the University of Auckland dealt with tunnel diode circuits and modeling, and his Ph.D. dissertation at the University of Saskatchewan with nanoparticle thin films. Since then, he has branched out into sensors and embedded systems for automotive engine control at Victoria University of Wellington and South Dakota School of Mines & Technology, and developed a long term interest in electronics packaging at SUNY-Binghamton, especially in electrically conductive adhesives. Prof. Morris is currently a “semi-retired” Professor Emeritus at Portland State University, where these interests have merged in nanopackaging. He has (co-)edited or co-authored seven books on electronics packaging and nanotechnology, two having been translated into Chinese, including “Nanopackaging” which is currently being expanded into a second edition. Jim has held visiting positions at several international universities, including at the Helsinki University of Technology as a Nokia-Fulbright Fellow. He has served the Nanotechnology Council as Vice-President for Conferences (2013-2014), Awards Chair (2010-2012), Nanopackaging TC chair/co-chair (2008-2014) and Nanotechnology Magazine nanopackaging column editor (2011- ).
Invited speakers

1. Graphene and carbon nanotubes based materials and devices
   Prof. Jie Lian, Rensselaer Polytechnic Institute, New York, USA, “Scalable Assembly of Graphene Nanosheets into 3D Macroscopic Structures for Effective Thermal Management”
   Prof. Frank Wang, Nanjing University, China, “Novel Optoelectronic Devices based on Planar Graphene-Nanotube Hybrid Film”

2. Materials and devices for nanoelectronics
   Dr. Nadine Collaert, IMEC, Belgium, “Vertical devices for future nano-electronic applications”
   Prof. Adrian Ionescu, EPFL, Switzerland,

3. Materials and devices for energy and environmental applications
   and

4. Nanostructures for future generation solar cells
   Dr. Giuliana Impellizzeri, CNR Catania, Italy, “TiO₂ and ZnO-based nanomaterials for applications in water treatment”
   Dr. Pillar Tiemblo Magro, CSIC Madrid, Spain, “Sustainable approaches in the design and preparation of polymer based insulators and electrolytes”

5. Ion beam synthesis and modification of nanostructures
   Prof. Hiroshi Amekura, NIMS, Japan, “Shape elongation of embedded metal nanoparticles by irradiation of swift heavy ions and cluster ions”
   Prof. Alexander Azarov, University of Oslo, Norway, “Combined ion implantation for defect engineering in GaN and ZnO”

6. Modeling and simulation of nanomaterials, structures, and devices
   Dr. Antonino La Magna CNR-IMM Catania, Italy, “Atom by Atom simulations of nano-materials processing”
   Dr. Hans-Christian Weissker, CINaM, Marseille, France, “From small clusters to larger nanoparticles: Quantum calculations in TDDFT”

7. Metamaterials and plasmonic devices
   Prof. Riccardo Sapienza, King’s college London, UK, “Hyperuniform plasmonic metasurfaces, controlling light with correlated disorder”

8. Photonic materials and devices
   Dr. Maria Tchernycheva, Institut d’Electronique Fondamentale, Paris, France, “Flexible optoelectronic devices based on nitride nanowires embedded in polymer films”

9. Organic semiconductor materials, devices and applications
   Prof. Stefan Mannsfeld, TU Dresden, Germany, “Shear-Coated High Performance Organic Conducting and Semiconducting Thin Films for Transistor and Solar Cell Applications”
   Prof. Hagen Klauk, Max Planck Institute, Stuttgart, Germany, “Submicron-Channel-Length Organic Thin-Film Transistors on Flexible Substrates”

10. Nanostructures of oxide semiconductor materials
    Dr. Myrtil Kahn, LCC, Toulouse, France, “Synthesis of metal oxide: from molecules to devices”
    Dr. Lidia Santos, U. Lisboa CENIMAT, Portugal, “Functional metal oxide nanoparticles: synthesis and applications”
Prof. Marc Respaud, INSA, AIME, Toulouse, France, “Nanotechnology practical teaching at school and university”

11. III-V semiconductors nanomaterials
Prof. Andréa Ballocchi, LPCNO, INSA, Toulouse, France, “Electrical Control of the Electron Spin Relaxation in (In)GaAs-based Quantum Wells”
Dr. Kirsten Moselund, IBM Zurich, Switzerland, “III-V heterojunction nanowire tunnel FETs monolithically integrated on silicon”

12. Nanostructures and devices for biomedical applications
and
13. Standards and safety issues of nanotechnology
Dr. Enrique Navarro, IPE, CSIC Zaragoza, Spain, “The use of biosensors for improving the development of nanotechnology under realistic-use scenarios: applications for cheaper and more effective silver nanoparticles and nanostructured surfaces”

14. Fundamental and applications of nanotubes, nanowires, quantum dots and other low dimensional materials
Prof. Thomas Schäpers, Forschungszentrum, Jülich, Germany, “Ballistic and Spin Transport in InAs Nanowires”

15. Plasma assisted deposition of nanocomposite materials
Dr. Fiorenza Fanelli, CNR Bari, Italy, “Preparation of hybrid multifunctional nanocomposite coatings by aerosol-assisted atmospheric cold plasma deposition”

16. Nanocomposite materials for aeronautics and space applications
Dr. Marc Legros, CEMES-CNRS, Toulouse, France, “Tiny but mighty: Size effects on the strength of metals”
Dr. Kateryna Kiryukhina, CNES, Toulouse, France, “Development of new nanocomposite materials for space applications”
### 11th IEEE NMDC - Program

**Date: Sunday, 09/Oct/2016**

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<th>Time</th>
<th>Event</th>
<th>Location</th>
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<tbody>
<tr>
<td>6:00pm</td>
<td>S-1: Registration and Welcome reception</td>
<td>Foyer Ariane</td>
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**Date: Monday, 10/Oct/2016**

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<tr>
<td>8:00am</td>
<td>Registration</td>
<td>Foyer Ariane</td>
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<td>8:30am</td>
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<tr>
<td>8:30am</td>
<td>Opening remarks</td>
<td>Ariane 1&amp;2</td>
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<tr>
<td>9:00am</td>
<td>Plenary 1: Prof. N. A. Burnham &quot;New looks at old (nano)materials with modern scanning probe techniques&quot;</td>
<td>Ariane 1&amp;2</td>
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<td>9:45am</td>
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#### New Looks at Old Materials: Nano-mechanics and Nano-chemistry of Shale and Bitumen

**Nancy Burnham**
Worcester Polytechnic Institute, United States of America

**M1-1: T1:** Graphene and carbon nanotubes based materials and devices
**M2-1: T4:** Nanostructures for future generation solar cells
**M3-1: T2:** Materials and devices for nanoelectronics

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<tr>
<td>9:45am</td>
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<td>10:45am</td>
<td>Invited (30min): Optical properties of miniband formed in the InGaAs/GaAs quantum well solar cells by means of photoreflectance, photoluminescence, and photothermal spectroscopies</td>
<td>Ariane 1&amp;2</td>
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<td>Invited (30min): Vertical devices for future nano-electronic applications</td>
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<td>Invited (30min): Bringing reconfigurable nanowire FETs to a logic circuits compatible process platform</td>
<td>Imec, Belgium</td>
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#### Advanced Vertically Aligned Carbon Nanotube Based Energy Storage Devices

**Wang Xinhui, Sun Leimeng, Zhang Qing**
Nanyang Technological University, Singapore

**M1-1: T2:** Optical properties of miniband formed in the InGaAs/GaAs quantum well solar cells by means of photoreflectance, photoluminescence, and photothermal spectroscopies

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<td>Invited (30min): Bringing reconfigurable nanowire FETs to a logic circuits compatible process platform</td>
<td>Imec, Belgium</td>
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#### Towards Barrier Free Contacts

1: University of Miyazaki, Japan; 2: The University of Tokyo, Japan; 3: RCAST, The University of Tokyo, Japan

**Type II heterojunction tunnel diodes based on GaAs for multi-junction solar cells: Fabrication,**

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<td>Invited (30min): Bringing reconfigurable nanowire FETs to a logic circuits compatible process platform</td>
<td>Imec, Belgium</td>
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to n-type CNTFETs using Graphene Electrodes

P R Yasasvi Gangavarapu, Punith Chikkahalli Lokesh, Kunchnadka Narayana Bhat, Akshay Naik
Indian Institute of Science, India

Kevin Louarn, Guilhem Almuneau
CNRS-LAAS, France

Synthesis and properties of new soluble benzobistriazole photovoltaic polymers
Lara Perrin, Victorien Jeux, Lionel Flandin
Univ. Savoie Mont Blanc, LEPMI, F-73000 Chambéry, France - CNRS, LEPMI, F-38000 Grenoble, France

A Near-IR Absorbing Copolymer for Nanoarchitected Solution-Processable Photovoltaic Devices: Synthesis and Application
Zeinab El-Moussawi1,2,3, Hussein Medlej4, Ali Nourdine1,2, Solenn Berson5, Joumana Toufaily6, Tayssir Hamieh7, Lionel Flandin1,2
1: Univ. Savoie Mont Blanc, LEPMI, F-73000 Chambéry, France; 2: CNRS, LEPMI, F-38000 Grenoble, France; 3: Univ. Libanais, MCE, MCMA, Campus Rafic Hariri, Hadath, Lebanon; 4: CEA, LITEN, Department of Solar Technologies, F-73375, Le Bourget du lac, France

10:45am

Coffee break: M1
Location: Foyer Ariane

11:00am

M1-2: T1: Graphene and carbon nanotubes based materials and devices
Location: Ariane 1&2

Invited (30min):
Novel Optoelectronic Devices based on Planar Graphene-Nanotube Hybrid Film
Frank Wang
Nanjing University, People's Republic of China

M2-2: T5: Ion beam synthesis and modification of nanostructures
Location: Spot

Invited (30min):
Combined ion implantation for defect engineering in GaN and ZnO
Alexander Azarov, Edouard Monakhov, Bengt G. Svensson
University of Oslo, Norway

M3-2: T2: Materials and devices for nanoelectronics
Location: Argos

Invited (30min):
Investigation of Carrier Recombination Process in Top-down Fabricated GaAs Nanodisc Array Structure by Photoluminescence Measurements
TETSUO IKARI1, DAISUKE OHORI1, AKIO HIGO2, CEDRIC THOMAS3, SEIJI SAMUKAWA3,
Doped carbon nanostructure for Cold-Field Emission Guns: Structural and EELS studies
Rongrong Wang1,2, Aurélien Masseboeuf2, David Neumeyer2, Marc Monthioux2, Alejandro Lopez-Bezanilla3, Raul Arenal3,4
1: CEMES, France; 2: LMA-INA, Spain; 3: Materials Science Div., Argonne National Lab., USA; 4: Fundacion ARAID, Spain

Invited (30min):
Shape Elongation of Embedded Metal Nanoparticles Induced by Irradiation with Swift Heavy Ions / Cluster Ions
Hirosi Ameuraka
Nat. Inst. for Mater. Sci. (NIMS), Japan

Ion-shaping of embedded gold hollow nanoshells into vertically aligned prolate morphologies
Pierre-Eugene Coulon1, Julia Amici1, Marie-Claude Clochard1, Giancarlo Rizza2, Sandrine Perruchas2, Vladimir Khomenkov2, Christian Dufour3, Isabelle Monnet3, Clara Grygiel1
1: Laboratoire des Solides Irradies, Ecole polytechnique, France; 2: Laboratoire de Physique de la Matière Condensée, Ecole polytechnique, France; 3: CIMP-ENSICAEN, University of Caen, Caen, France

He-ion induced structural transformation of supported Ag nanoparticles
Ghassan Khadra1, Caroline Andreazza-Vignolle1, Pascal Anreza1, Marie-France Barthe2, Thierry Sauvage2, Amael Caillard2, Anne-Lise Thomann2, Pierre Desgardin1
1: ICMN - UMR 7374, CNRS - Université d’Orléans, 1B rue de la Férollerie, 45071 Orléans, France; 2: CEMHTI – UPR3079, CNRS - Université d’Orléans, 3A rue de la Férollerie, 45071 Orléans, France; 3: GREMI, UMR7344 CNRS Université d’Orléans BP6744, 45067 Orléans Cedex 2, France

Solution processed MoO2/ZnO Hetrojunction Electrical Characteristics
Hemant Kumar1, Yogesh Kumar1, Gopal Rawat1, Chandan Kumar1, Bhola Nath Pal2, Satyabrata Jit1
1: Department of Electronics, IIT BHU, Varanasi, India; 2: School of Material Science and Technology, IIT BHU, Varanasi, India

Solution-Processed Colloidal ZnO Quantum Dots Based Photojunction Photodetector
Yogesh Kumar1, Hemant Kumar1, Gopal Rawat1, Chandan Kumar1, Bhola Nath Pal2, Satyabrata Jit1
1: Department of Electronics, IIT BHU, Varanasi, India; 2: School of Material Science and Technology, IIT BHU, Varanasi, India

Ultra-high Storage Densities in Nanoscale Patterned Probe Phase Change Memories
Hasan Hayat, Krisztian Kohary, C. David Wright
University of Exeter, United Kingdom
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<td>12:30pm - 2:00pm</td>
<td>Lunch: Monday</td>
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<td>2:00pm - 2:45pm</td>
<td>NTC Distinguished Lecturer: Prof. Yonhua Tzeng, IEEE Fellow &quot;Diamond and graphene nanotechnology for energy storage and optoelectronic applications&quot;</td>
<td>Ariane 1 &amp; 2</td>
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<td>2:45pm - 4:00pm</td>
<td>M1-3: T1: Graphene and carbon nanotubes based materials and devices</td>
<td>Ariane 1 &amp; 2</td>
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<td>M2-3: T7: Metamaterials and plasmonic devices</td>
<td>Ariane 1 &amp; 2</td>
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<td>M3-3: T2: Materials and devices for nanoelectronics</td>
<td>Argos</td>
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<td>4:00pm -</td>
<td>Invited (30min): Hyperuniform plasmonic metasurfaces, controlling light with correlated disorder</td>
<td>Spot</td>
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<td>Tuning Coulomb Blockade in Ultra-Small Nanoparticle Self-Assemblies, at Room-Temperature</td>
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<td>Plasmonic properties of ion-shaped nanoparticles</td>
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<td>Tuning the linear and nonlinear optical response of orthogonal dimer antennas for metasurfaces</td>
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<td>Joule Heating Effects in Nanoscale Carbon-based Memory Devices</td>
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**MicroCaractérisation Raymond Castaing, UMS - 3623 CNRS, Université de Toulouse, France;**

4: Department of Physics, and Warwick Centre for Analytical Science, University of Warwick, Coventry, UK

1: LAAS-CNRS, Université de Toulouse, CNRS, INSA; 2: CIRIMAT, UMRCNRS 5085; 3: Université Paul Sabatier

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1: University of Exeter, United Kingdom; 2: IBM Research Zurich, Switzerland; 3: University of Cambridge, United Kingdom
Ultra-Thin SiO2 Dielectric Characteristics Using E-beam Evaporated System on HOPG and CVD Graphene
H. J. Hwang1,2, Lanxia Cheng1, A. T. Lucero1, B. H. Lee2, Jiyoung Kim1
1: The University of Texas at Dallas, United States of America; 2: Gwangju Institute of Science and Engineering

Plasmonic photoconductance in free-standing monolayered gold nanoparticle membranes
Elie TERVER1,2, Melanie GAUVIN1, Thomas ALNASSER1, Ines ABID3, Adnen MLAYAH3, Shenqui XIE3, Juergen BRUGGER1, Benoit VIALLET1, Laurence RESSIER1, Jérémie GRISOLIA1
1: Université de Toulouse, LPCNO, INSA-CNRS-UPS, 135 avenue de Rangueil, Toulouse 31077, France.; 2: CEMES-CNRS and Université de Toulouse, 29 rue Jeanne Marvig, BP 94347, F-31055 Toulouse Cedex 4, France.; 3: Microsystems Laboratory, École Polytechnique Fédérale de Lausanne, Station 17, 1015 Lausanne, Switzerland

HfOx complementary resistive switches
Marina Labalette1,4, Serge Ecoffey1,2, Simon Jeannot3, Abdelkader Souifi2,4, Dominique Drouin1,2
1: Institut Interdisciplinaire d’Innovation Technologique (3IT), Université de Sherbrooke, Canada; 2: Laboratoire Nanotechnologies Nanosystèmes (LN2) - CNRS UMI-3463; 3: STMicroelectronics; 4: Laboratoire Nanotechnologies Nanosystèmes (LN2) - CNRS UMI-3463,

Experimental and simulation study of a high current 1D silicon nanowire transistor using heavily doped channels
Vihar Petkov Georgiev1, Muhammad M. Mirza1, Alexandru-Iustin Dochioiu1, Fikru-Adamu Lema1, Slavatore M. Amoroso2, Ewan Towie3, Craig Riddet4, Donald A. MacLaren5, Asen Asenov1, Douglas J. Paul1
1: University of Glasgow, United Kingdom; 2: Gold Standard Simulations Ltd

Differential Hall characterisation of shallow strained SiGe layers
Richard Daubriac1, Mahmoud Abou Daher1, Filadelfo Cristiano1, Emmanuel Scheid1, Sylvain Joblot2, David Barge2
1: LAAS, CNRS and Univ. of Toulouse, 7 av. Du Col. Roche, 31400 Toulouse, France; 2: STMicroelectronics, 850 rue Jean Monnet, 38926 Crolles, France

Working title
6:00pm

Coffee break: M2
Location: Foyer Ariane

4:00pm

4:30pm

M1-4: T11: III-V semiconductors nanomaterials
Location: Ariane 1&2

Invited (30min):
III-V heterojunction nanowire tunnel FETs monolithically integrated on silicon
Kirsten Emilie Moselund¹, Davide Cutala¹, Heinz Schmid¹, Mattias Borg¹, Saurabh Sant², Andreas Schenk², Heike Riel¹
1: IBM Research Zurich, Switzerland; 2: ETH Zürich, Switzerland

Invited (30min):
Electrical Control of the Electron Spin Relaxation in (In)GaAs-based Quantum Wells
Andrea Balocchi¹, Sawsen Azaizia¹, Hélène Carrère¹, Thierry Amand¹, Alexandre Arnoult³, Chantal Fontaine³, Baoli Liu¹, Xavier Marie¹
1: Université de Toulouse, INSA CNRS-UPS, LPCNO 135 Avenue de Rangueil, 31077 Toulouse, France; 2: LAAS-CNRS, Université de Toulouse 7 Avenue du Colonel Roche, F-31400 Toulouse, France; 3: Beijing National Laboratory for Condensed Matter Physics Institute of Physics, Chinese Academy of Sciences, P.O. Box 603, Beijing 100190, China

Carrier dynamics in GaAsBi quantum wells
Sawsen Azaizia¹, Andrea Balocchi¹, Delphine Lagarde¹, Alexandre Arnoult³, Xavier Marie¹, Chantal Fontaine³, Hélène Carrère¹
1: Laboratoire de Physique et

M2-4: T7: Metamaterials and plasmonic devices
Location: Spot

Photoluminescence quenching in hybrid gold/MoSe₂ nanosheets
Ines Abid¹, Jiangtan Yuan², weibing Chen², Sina Najmaei³, Patrick Benzo¹, Renaud Péchou¹, Adnen Milayah¹, Jun Lou²
1: Centre d’Elaboration des Materiaux et Etudes Structurales, France; 2: Department of Materials Science and NanoEngineering, Rice University, Houston, Texas 77005, US; 3: United States Army Research Laboratories, Sensors and Electron Devices Directorate, 2800, Powder Mill Road, Adelphi, MD 20783

Infrared properties of patterned CNT forest for metamaterials
Adam Michal Pander¹, Keisuke Takano¹, Makoto Nakajima¹, Akimitsu Hatta¹, Hiroshi Furuta¹
1: Kochi University of Technology, Japan; 2: Osaka University, Japan

Highly doped InAsSb plasmonic arrays for mid-infrared biosensing
Franziska Barho, Fernando Gonzalez-Posada, Maria-Jose Milla Rodrigo, Mario Bomers, Laurent Cerutti, Thierry Taliercio
University of Montpellier - CNRS, UMR 5214, France

M3-4: T14: Fundamental and applications of nanotubes, nanowires, quantum dots and other low dimensional materials
Location: Argos

Invited (30min):
Ballistic and Spin Transport in InAs Nanowires
Thomas Schaepers¹, Sebastian Heedt¹, Andreas Bringer², Hilde Hardtdegen³, Juergen Schubert¹, Detlev Gruetzmacher¹, Michael Kammermeier³, Paul Wenk³, John Schliemann³, Werner Prost⁴
1: PGI-9, Forschungszentrum Jülich, Germany; 2: PGI-1, Forschungszentrum Jülich, Germany; 3: Institute for Theoretical Physics, University of Regensburg; 4: Solid State Electronics Department, University of Duisburg-Essen

Optical Control of Resonance Energy Transfer in Quantum Dot Systems
Dilusha Weeraddana¹, Malin Premaratne², David Andrews²
1: Advanced Computing and Simulation Laboratory, Department of Electrical and Computer Systems Engineering, Monash University, Australia; 2: University of East Anglia, Norwich Research Park, United Kingdom

Structural investigation of Indutively Coupled Plasma ultra-thin Silicon Nanowires
Simona Boninelli¹, Marta Agati¹², Guillaume Amiard¹
Fabrication of GaAs nanowires and GaAs-Si axial heterostructure nanowires on Si (100) substrate for new applications

Aurélie LECESTRE¹,², Nicolas MALLET³, Mickael MARTIN³, Thierry BARON³, Guilhem LARRIEU¹
1: LAAS-CNRS, France; 2: INP Toulouse, France; 3: CEA-MINATEC, CNRS-LTM, France

THz absorbers with highly doped semiconductors based in plasmonic nano-resonators

Fatima Omeis², Fernando Gonzalez-Posada¹, Laurent Cerutti¹, Rafik Samaali³, Emmanuel Centeno³, Thierry Taliercio¹
1: University of Montpellier - CNRS, UMR 5214, France; 2: University Blaise Pascal - CNRS, UMR 6602, France

Responsivity Enhancement of MIS Photodetectors on SOI Substrates by Plasmonic Nanoantennas

Revathy Padmanabhan, Ofir Sorias, Ori Eyal, Vissarion Mikhelashvili, Meir Orenstein, Gadi Eisenstein
Technion-Israel Institute of Technology, Haifa, Israel

Effect of Low Temperature Treatment of Tungsten Oxide (WOx) Thin Films on the Electrochromic and Degradation Behavior

Kunyapat Thummavichai, Yanqui Zhu
University of Exeter, United Kingdom

An effective algorithm for clocked Field-Coupled Nanocomputing paradigm

Ruiyu Wang, Michele Chilla, Alessio Palucci, Mariagrazia Graziano, Gianluca Piccinini
Politecnico di Torino, Italy

Social event: Capitole, Salle des illustres

6:30pm - 8:30pm
### Date: Tuesday, 11/Oct/2016

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
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<tbody>
<tr>
<td>8:30am</td>
<td><strong>Plenary 2:</strong> Prof. Jan Linnros &quot;Silicon at the nanoscale using lithography control: Nanowires, nanopores and quantum dots&quot;</td>
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<tr>
<td>9:15am</td>
<td><strong>Location:</strong> Ariane 1&amp;2</td>
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<tr>
<td>9:15am</td>
<td><strong>T1-1:</strong> T12 + T13: Nanostructures and devices for biomedical applications and Standards and safety issues of nanotechnology</td>
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<tr>
<td>10:30am</td>
<td><strong>Location:</strong> Ariane 1&amp;2</td>
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<td><strong>Invited (30min):</strong> The use of biosensors for improving the development of nanotechnology under realistic-use scenarios: applications for cheaper and more effective silver nanoparticles and nanostructured surfaces</td>
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<td><strong>Enrique Navarro</strong> Spanish National Research Council, Spain</td>
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<td></td>
<td><strong>Bio-imaging of Lung Diseases using Luminescent Graphene Nanocrystals</strong></td>
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<td><strong>Tanveer Ahmad Tabish</strong>^1, Liangxu Lin^1, Farhat Jabeen^2, Muhammad Ali^3, Shaowei Zhang^1**</td>
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<td>1: University of Exeter, United Kingdom; 2: Government College University, Faisalabad, Pakistan</td>
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<tr>
<td></td>
<td><strong>Controlled synthesis of core-shell Fe@Au faceted Nanoparticles</strong></td>
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<td><strong>Patrizio Benzo</strong>^1, Magali Benoit^1, Nathalie Tarrat^2, Cyril Langlois^2, Raul Arenal^3, Béatrice Pécessou^1, Arnaud Le Priol^1, Nicolas Combe^1, Anne Ponchet^1, Marie-José Casanove^1**</td>
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<td></td>
<td>1: CEMES, CNRS UPR 8011 and Université de Toulouse, 29 rue Jeanne Marvig, F-31055 Toulouse cedex4, France; 2: MATEIS, INSA Lyon, 7, Avenue Jean Capelle, F-69621 Villeurbanne Cedex, France; 3: L.M.A., Instituto de Nanociencia de Aragon, Universidad de Zaragoza, C/Mariano Esquillor s/n, 50018 Zaragoza, Spain</td>
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<tr>
<td>10:30am</td>
<td><strong>Coffee break:</strong> T1</td>
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<td>11:00am</td>
<td><strong>Location:</strong> Foyer Ariane</td>
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<td>11:00am</td>
<td><strong>T1-2:</strong> T12 + T13: Nanostructures and devices for biomedical applications and Standards and safety issues of nanotechnology</td>
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<td>12:30pm</td>
<td><strong>Location:</strong> Ariane 1&amp;2</td>
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<td><strong>Interfacial Tuning for Detection of Cortisol in</strong></td>
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<td></td>
<td><strong>Invited (30min):</strong> TiO2 and ZnO-based nanomaterials for applications in water treatment**</td>
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<td><strong>Giuliana Impellizzeri</strong> CNR-IMM, Catania, Italy</td>
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<td><strong>Water-Free Synthesis of Monodisperse Nickel(0) Nanoparticles</strong></td>
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<td><strong>Koyel Bhattacharyya, Nicolas Mézailles</strong> University Paul Sabatier, France</td>
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<td><strong>Miniaturized 3D gas sensors based on silicon nanowires for ppb range detection</strong></td>
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<td><strong>Brieux DURAND, Aurélie LECESTRE, Philippe MENINI, Guilhem LARRIEU</strong></td>
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<td><strong>LAAS-CNRS, France</strong></td>
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<td><strong>Interfacial impedance based electrochemical detection of carbon dioxide using RTIL</strong></td>
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<td><strong>Rujuta Munje, Edward Graef, Shalini Prasad</strong> University of Texas Dallas, United States of America</td>
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<tr>
<td>11:00am</td>
<td><strong>T2-1:</strong> T3: Materials and devices for energy and environmental applications</td>
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<tr>
<td>12:30pm</td>
<td><strong>Location:</strong> Argos</td>
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<td><strong>Invited (30min):</strong> Sustainable Approaches in the Design and**</td>
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<tr>
<td>Title</td>
<td>Authors</td>
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<tr>
<td>Sweat using ZnO Thin Films for Wearable Biosensing</td>
<td>Shalini Prasad¹, Rujuta Munje², Sriram Muthukumar³</td>
</tr>
<tr>
<td>Electronic bracelet for alcohol lifestyle monitoring</td>
<td>David Kinnamon¹, Anjan Panneer Selvam¹, Sriram Muthukumar², Shalini Prasad¹</td>
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<tr>
<td>Probing electrical activity of single neurons based on 1D nanostructures: from extra to intracellular interfacing.</td>
<td>Adrien CASANOVA¹, Marie-Charline BLATCHE², Fabrice MATHIEU², Aurélie LECESTRE², Cécile FERRE², Daniel GONZALEZ-DUNIA², Liviu NICU², Guilhem LARRIEU²</td>
</tr>
<tr>
<td>Ring nanoelectrodes integrated into microwell arrays for the analysis of mitochondria isolated from leukemic cells.</td>
<td>Gabriel Lemercier¹,², Fadhila Sékli-Belaïdi¹, Suresh Vajrala³, Stéphane Arbault³, Jérôme Launay¹, Jean-Emmanuel Sarry², Pierre Temple-Boyer¹</td>
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<td>Bifunctional silica nanoparticles for the exploration of Pseudomonas aeruginosa biofilm</td>
<td>Mauline Laila², Marie Gressier², Peter Hammer³, Sidney Ribeiro³, JMA Caliù³, Marie-Joëlle Menu², Christine Roques¹</td>
</tr>
<tr>
<td>Preparation of Polymer Based Insulators and Electrolytes</td>
<td>Nuria García¹, Aranzazu Martinez-Gómez¹, Julio Guzmán¹, Alberto Mejía², Francisco Gonzalez¹, Aitor Rubio¹, Raquel de Francisco³, Pilar Tiemblo¹</td>
</tr>
<tr>
<td>Novel electrical properties of extruded LDPE-GnP filled nanocomposites</td>
<td>Xiangdong Xu, Karolina Gaska, Rian Hafiizh Azhari, Roland Kádár, Stanislaw Gubanski</td>
</tr>
<tr>
<td>On-chip carbide derived carbon films for high performance micro-supercapacitors</td>
<td>Kevin BROUSSE¹, Peihua HUANG¹, Sebastien PINAUD², Marc RESPAUD²-³, Bruno CHAUDRET², Christophe LETHIEN², Pierre-Louis TABERNA², Patrice SIMON¹</td>
</tr>
<tr>
<td>Micromolar Nitrate Electrochemical Sensors for Seawater Analysis with Silver Nanoparticles Modified Gold Electrode</td>
<td>Emilie Lebon¹,², Jérémy Cure¹, Pierre Fau¹,², Myrtil Kahn¹, Christine Lepetit¹, Katia Fajerweg¹,²</td>
</tr>
<tr>
<td>Capacitive Modeling of TiO2 Nanotube based Gas/Vapor Sensor Devices</td>
<td>Arnab Hazra</td>
</tr>
</tbody>
</table>
### Design, realization and characterization of silicon nanowire ion sensitive field effect transistors

Ahmet LALE, Auriane GRAPPIN, Emmanuel SCHEID, Jérôme LAUNAY, Pierre TEMPLE-BOYER
laas-cnrs, France

<table>
<thead>
<tr>
<th>Time</th>
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<th>Location</th>
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<tr>
<td>12:30pm</td>
<td>Lunch: Tuesday</td>
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<tr>
<td>2:00pm</td>
<td>Poster session</td>
<td>Foyer Ariane</td>
</tr>
</tbody>
</table>

### Surface Plasmon Multiplexer employing Multimode Interferometer

Asahi Sumimura¹, Kotaro Nakayama¹, Masashi Ota¹², Yuya Ishii¹, Mitsuo Fukuda¹
1: Tohoku University, Japan; 2: Japan Society for the Promotion of Science, Japan

### Nano Transistor Biosensor for Diagnosis of Acute Myocardial Infarction (AMI)

YONG-BEOM SHIN¹², In-Kyu Lee¹³, Young Kyoung Oh¹², Ki Joong Lee¹, Won-Ju Cho⁴
1: Korea Research Institute of Bioscience & Biotechnology; 2: University of Science and Technology (UST); 3: Gwangju Institute of Science and Technology (GIST); 4: Kwangwoon University

### Electrical properties of nanocomposite thin films deposited in ECR plasma

Mouloud Kihel², Richard Clergereaux¹, Salah Sahli²
1: LAPLACE, France; 2: Laboratoire de Micrösystèmes et Instrumentation, Université de Constantine, Algeria

### Defect investigation of excimer laser annealed silicon

Richard Monflier¹, Toshiyuki Tabata², Filadelfo Cristiano¹, Inès Toque-Tresonne², Fulvio Mazzamuto², Julien Rout¹, Maria-Teresa Hungria-Hernandez², Corinne Routaboul¹, Elena Bedel-Pereira¹
1: LAAS-CNRS, Université de Toulouse, UPS, Toulouse, France; 2: SCREEN-LASSE, 14-38 Rue Alexandre, 92230 Gennevilliers, France; 3: Centre de Microcaractérisation Raimond Castaing, UMS 3623, Espace Clément Ader, 3 rue Caroline Aigle, 31400 Toulouse, France; 4: Institut de Chimie de Toulouse, 118 route de Narbonne, 31062 Toulouse, France

### Colloid drug based on aluminum oxide labelled 99mTc

Aleksandr Rogov, Viktor Skuridin, Elena Stasyuk, Evgeniy Nesterov, Vladimir Sadkin, Nataliy Varlamova, Ekaterina Ilina, Ludmila Larionova, Nelson Villa
Tomsk Polytechnic University, Russian Federation

### Structural stability study of F20L oligomeric and protofibrillar amyloid pair structures using molecular dynamics simulations

Hyunjoon Chang, Myeongsang Lee, Inchul Baek, Sungsoo Na, Yoonjung Kim
Korea University, Korea, Republic of (South Korea)
One Electron-Controlled Multi-Valued Dynamic Random-Access-Memory  
**Jung-Bum Choi**  
Chungbuk National University, Korea, Republic of (South Korea)  

Low Power All Spin Logic Device with Voltage Controlled Magnetic Anisotropy  
**Tianqi Gao, Lang Zeng, Deming Zhang, Fanghui Gong, Xiaowan Qin, Yue Zhang, Youguang Zhang, Weisheng Zhao**  
Beihang University, China, People’s Republic of  

The Effect of Ultrasonic Dispersion on the Surface Chemistry of Carbon Nanotubes in the Jeffamine D-230 Polyetheramine Medium  
**Mohsen Shahshahan, Pasi Keinänen, Jyrki Vuorinen**  
Tampere University of Technology  

Highly Efficient Nanoporous Gold-Modified Multi-Electrode Arrays for in vitro Extracellular Recording and Stimulation Performance  
**Yong Hee Kim, Gook Hwa Kim, Jongkil Park, Sang-Don Jung**  
Electronics & Telecommunications Research Institutes, Korea, Republic of (South Korea)  

Guiding Properties of 1.31 and 1.55 μm wavelength Surface Plasmon Polaritons and Wavelength-Selective Guiding  
**Shinya Okahisa, Kotaro Nakayama, Yutaro Nakayama, Yuya Ishii, Mitsuo Fukuda**  
Toyohashi University of Technology, Japan  

Stability of switchable SmS for piezoresistive applications  
**Andreas Sousanis, Philippe F. Smet, Christophe Detavernier, Dirk Poelman**  
University of Ghent, Belgium  

Pyroelectric effect Investigation on LiNbO3 crystal under Humidity conditions using microheater  
**Shomnath Bhowmick1,2, Mario Iodice1, Mariano Gioffre1, Giuseppe Coppola1, Giovanni Breglio2, Andrea Irace2, Michele Riccio2, Gianpaolo Romano2**  
1: Institute Of Microelectronics and Microsystem, Italy; 2: University of Fedrico II, Dept. of Information and electrical engineering  

Enhanced Atomic Layer Deposition of High-k Dielectrics on Graphene  
**Yong Hyun Park, Sang Woon Lee**  
Ajou University, Republic of Korea  

Influence of Electron Interference Effects on Reflection of Electron Waves from Potential Barrier in 2D Semiconductor Nanostructures  
**Victor A. Petrov, Andrey V. Nikitin**  
Institute of Radio Engineering and Electronics, Russian Academy of Sciences, Russian Federation
Crystallinity of Silicon-Shells Deposited onto Germanium and Silicon Nanowires for Core-Shell Nanostructures and Nanotubes

Ardeshir Moeinian, Nicolas Hibst, Steffen Strehle
Department of Electronic Devices and Circuits, University of Ulm, Germany

Developing new joining materials for low-temperature electronics assembly

Pierre Roumanille$^{1,2}$, Valérie Baco$^2$, Corine Bonningue$^2$, Michel Gougeon$^2$, Philippe Tailhades$^2$, Philippe Monfraix$^1$
1: IRT Saint Exupery, Toulouse, France; 2: CIRIMAT, Toulouse, France

Combined theoretical and experimental studies of P3HT and PTB7 polymers for organic photodiodes

Léa Farouil$^{1,2}$, Fabienne Alary$^2$, Elena Bedel-Pereira$^1$, Isabelle Seguy$^1$, Julien Roul$^1$, Corinne Routaboul$^1$, Victoria Shalabaeva$^2$, Gabor Molnar$^3$, Jean-Louis Heully$^2$
1: LAAS, France; 2: LCPQ, France; 3: LCC, France

Organic photodiode for detection of herbicides in water using microalgal photosynthesis

Vincent Ventalon$^{1,2}$, Fadila Sekli$^{1,2}$, Aliki Tsopela$^{1,2}$, Ludovic Salvagnac$^{1,2}$, Ricardo Izquierdo$^3$, Juneau Philippe$^3$, Véronique Bardinal$^{1,2}$, Jérome Launay$^{1,2}$, Pierre Temple-Boyer$^{1,2}$, Isabelle Ségy$^{1,2}$, Elena Bedel-Pereira$^{1,2}$
1: LAAS CNRS, France; 2: Université Paul Sabatier de Toulouse, UPS, France; 3: Université du Québec à Montréal, Quebec.

Strain energy deformation analysis of the Shape Memory Alloy under external mechanical behaviour and their application in new technologies

Brahim NECIB
University of Constantine, Algeria

Lab-on-chip with microalgal based biosensor for water assessment

Fadhila SEKLI BELAIDI$^{1,2}$, Aliki TSOPELA$^{1,2}$, Vincent VENTALON$^{1,2}$, Ludovic SALVAGNAC$^{1,2}$, Elena BEDEL-PEREIRA$^{1,2}$, Veronique BARDINAL$^{1,2}$, Isabelle SEGUY$^{1,2}$, Pierre TEMPLE-BOYER$^{1,2}$, Phillipe Juneau$^3$, Récardo Izquierdo$^3$, Jérôme LAUNAY$^{1,2}$
1: LAAS CNRS, France; 2: Université de Toulouse, UPS, LAAS; 3: Université du Québec à Montréal

Atmospheric pressure plasma treatment of polyurethane foams for heavy metals removal from water

Vincenza Armenise$^1$, Fiorenza Fanelli$^2$, Francesco Fracassi$^1$
1: University of Bari Aldo Moro, Department of Chemistry, Bari, Italy; 2: National Research Council (CNR), Institute of Nanotechnology (NANOTEC), Bari, Italy

13.56 MHz rectifier based on a microcrystalline silicon Schottky diodes for RFID application

Isman Souleiman$^2$, Claude Simon$^2$, Nathalie Coulon$^2$, Samuel Crand$^2$, Tayeb Mohammed-Brahim$^2$
1: University of Djibouti; 2: University of Rennes 1
A contribution to breakdown voltage characteristics in air for inter-electrode distances 1 - 10 $\mu$m at various pressures

Gama Titis Anuraga$^{1,2,3}$, Jean-Pascal Cambronne$^1$, Sorin Dinculescu$^1$, Ngapuli Irmea Sinisuka$^3$, Kremena Makasheva$^1$

1: LAPLACE, University of Toulouse, CNRS, INPT, UPS, France; 2: State of Electricity Company (PLN), Indonesia; 3: Bandung Institute of Technology (ITB), Indonesia

Enhancement of Electrical Insulation Properties of Epoxy Nanocomposites with Fullerenes

Rado Herilala Rabarison$^1$, Flavien Valensi$^1$, Sombel Diaham$^1$, Manitra Razafinimanana$^1$, Michel Baltas$^2$, Isabelle Fabing$^2$

1: LAPLACE, France; 2: LSPCMIB, France

Application of Artificial Neural Network in materials science

Sarita Jagdish Charde, Shriram S Sonawane

Visvesvaraya National Institute of Technology, Nagpur, India

EFFECT OF MWCNT DOPING ON THE MICROWAVE SINTERED KNN SYSTEM WITH K/Na RATIO OF 0.48/0.52 IN COMPARISON WITH THAT OF PZT

ABHISHEK V N, K SARAVANA KUMAR, VEERESH H B

RV COLLEGE OF ENGINEERING, India

A Small-Size Zigzag Balanced Antenna for LTE Systems

Issa Elfergani$^1$, Abubakar Sadiq Hussaini$^1$, Jonathan Rodriguez$^1$, Antonio Navarro$^1$, Pedro Pinho$^1$, Abdelgader Abdallah$^1$, Raed Abd-Alhameed$^2$

1: Instituto de Telecomunicações – Aveiro, Portugal; 2: University, Bradford, West Yorkshire, BD7 1DP, UK

Effect of Self-organisation of Interelectrodes Nanodisperse Ensembles on DD Neutrons and Hard X-rays Release from Nanosecond Vacuum Discharge

Yuri Konstantinovich Kurilenkov

Joint Institute for High Temperatures, Russian Federation

Gap and Van Hove Measurements via Low-loss Electron Energy Loss Spectroscopy on Atomically thin MoxW(1-x)S2 Nanoflakes

Mario Pelaez Fernandez$^1$, Kazu Suenaga$^2$, Raul Arenal$^{1,3}$

1: Universidad de Zaragoza, Spain; 2: AIST, Japan; 3: Fundacion ARAID, Spain

Production of a new materials from Moroccan oil shale

Abdelkrim abourriche

ENSA Safi, Morocco

True Random Number Generator based on Nanomagnets

Luca Gnoli$^1$, Matteo Bollo$^1$, Marco Vacc$^1$, Mariagrazia Graziano$^{1,2}$, Giorgio Di Natale$^3$

1: Department of Electronics and Telecommunications, Politecnico di Torino, Turin, Italy; 2: London Center for Nanotechnology, London, United Kingdom; 3: Laboratoire d’Informatique, de Robotique
Controlling nanowire nucleation for integration on silicon
Daya S. Dhungana, Nicolo Sartori, Nicolas Mallet, Filadelfo Cristiano, Guilhem Larrieu, Anne Hemeryck, Sébastien R. Plissard
LAAS-CNRS, France

Improvement of interfacial properties of Al2O3 / GaSb using O2 plasma postoxidation process
Yoann Lechaux, Alain-Bruno Fadjie-Djomkam, Sylvain Bollaert, Laurence Morgenroth, Nicolas Wichmann
Institut d'Electronique, de Microélectronique et de Nanotechnologie, France

Modelling the temperature dependence of 28nm Fully Depleted Silicon-On Insulator (FDSOI) Static Characteristics based on Parallel Computing Approach
ABD ELGADER ABDALLA, Issa Elfergani, Jonathan Rodriguez
Instituto de Telecomunicações, Portugal

On the application of Surface Enhanced Raman Scattering to study the interaction of DsRed fluorescent proteins with silver nanoparticles embedded in thin silica layers
SOUMBO Marvine1,2, PUGLIARA Alessandro1,3, MLAYAH Adnen3, MONJE Marie-Carmen2, ROQUES Christine2, DESPAX Bernard2, BONAFOS Caroline3, CARLES Robert3, MAKASHEVA Kremena1
1: LAPLACE, Université de Toulouse ; CNRS, UPS, INPT; 118 route de Narbonne, F-31062 Toulouse, France; 2: LGC, Université de Toulouse ; CNRS, UPS, INPT; 35 chemin des maraîchers, F-31062 Toulouse, France; 3: CEMES-CNRS, Université de Toulouse, 29 Jeanne Marvig, BP 94347, F-31055 Toulouse, France

4:00pm - 6:00pm Visit: Aeroscopia Museum
8:00pm - 11:00pm Conference diner: Hotel Dieu St. Jacques
**Date: Wednesday, 12/Oct/2016**

8:30am **Special session IRT St. Exupéry, Plenary 3: Prof. Tony McNally "Challenges in the Preparation of Composites of Polymers and Nanoparticles: From Molecule to Manufacture"**

9:15am **Location:** Ariane 1&2

9:15am **W1-1: T16: Nanocomposite materials for aeronautics and space applications**

10:30am **Invited (30min):**

Tiny but mighty: Size effects on the strength of metals

**Legros Marc, Mompiou Frederic**

CEMES-CNRS, France

**Invited (30min):**

Development of new nanocomposite materials for space applications

**Kateryna Kiryukhina**

CNES, France

High-performance thermoplastic conductive nanocomposites poly(ether ketone ketone)/silver nanowires for aeronautical applications

**Luis QUIROGA CORTES, Antoine LONJON, Eric DANTRAS, Colette LACABANNE**

Physique des Polymères CIRIMAT - Université Paul Sabatier, France

9:15am **W2-1: T8: Photonic materials and devices**

Invited (30min):

Flexible optoelectronic devices based on nitride nanowires embedded in polymer films

**Marie TCHERNYCHEVA**₁, **Nan Gan**₁, **Xing Dai**₁, **Agnès Messanvi**₁, **Hezhi Zhang**₁, **Fabien Bayle**₁, **Vladimir Neplokh**₁, **Valerio Piazza**₁, **François Julien**₁, **Catherine Bougerol**₁, **Martin Vallo**₁, **Christophe Durand**₂, **Joël Eymery**₂

1: C2N-CNRS, Univ. Paris Sud, Université Paris Saclay, Orsay, France; 2: CEA/CNRS/Université Joseph Fourier, CEA, INAC, SP2M, 17 rue des Martyrs, 38054 Grenoble Cedex 9, France

Bismuth as an efficient visible emitter and as a sensitizer for Er ions in Si-compatible yttrium compounds

**AdrianaScarangella**₁², **Guillaume Amiard**₁, **Riccardo Reitano**³, **Simona Boninelli**₁, **Giorgia Franco**₁, **Francesco Priolo**³, **Maria Miritello**₁

1: IMM-CNR Matis, Via Santa Sofia 64, 95123, Catania, Italy; 2: LAPLACE - Laboratoire Plasma et Conversion d’Energie, Université Paul Sabatier, 118 route de Narbonne, 31062, Toulouse Cedex 09, France; 3: Physics and Astronomy Department, Università di Catania, Via S. Sofia 64, 95123 Catania, Italy

Enhanced nonlinear optical properties from individual silicon nanowires

**Peter Wiecha**₁², **Arnaud Arbouet**₁², **Christian Girard**₁², **Thierry Baron**⁴⁵, **Aurélie Lecestre**₁³, **Guilhem Larrieu**₁³, **Vincent Paillard**¹²

1: University of Toulouse, France; 2: CEMES-CNRS; 3: LAAS-CNRS; 4: LTM; 5: University of Grenoble-Alpes

Evolutionary Multi-Objective Optimization for Multi-Resonant Photonic Nanostructures

**Peter R. Wiecha**₁, **Arnaud Arbouet**₁, **Christian Girard**₁, **Aurélie Lecestre**₁, **Guilhem Larrieu**₁, **Vincent Paillard**₁
<table>
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<tr>
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<tbody>
<tr>
<td>10:30am</td>
<td>Coffee break: W1</td>
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<td>11:00am</td>
<td>W1-2: T15: Plasma assisted deposition of nanocomposite materials</td>
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<td>Location: Ariane 1&amp;2</td>
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<td>12:30pm</td>
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**Invited (30min):**

**Preparation of Hybrid Multifunctional Nanocomposite Coatings by Aerosol-Assisted Atmospheric Cold Plasma Deposition**

Fiorenza Fanelli¹, Francesco Fracassi¹²
1: CNR-Institute of Nanotechnology (NANOTEC), Bari, Italy; 2: Department of Chemistry, University of Bari "Aldo Moro", Bari, Italy

**Nanocomposite (multi)functional surfaces: various strategies to efficiently incorporate nanoparticles in atmospheric plasma-polymerized thin films**

David Ruch
Luxembourg Institute of Science and Technology, Luxembourg

**Deposition of TiO2-SiO2 nanocomposite coatings using atmospheric-pressure plasmas**

Jacopo Profili¹², Nicolas Gherardi¹, Nicolas Naudé², Luc Stafford¹
1: Département de physique, Université de Montréal, Montréal, Canada; 2: LAPLACE, Université de Toulouse, CNRS, UPS, INPT, Toulouse, France

**Charge injection mitigation in polyethylene induced by silver nanoparticles containing organosilicon barrier layer as demonstrated by conductivity measurements**

Laurent Milliere¹, Kremena Makasheva², Christian Laurent², Bernard Despax², Boudou Laurent¹, Teyssedre Gilbert²
1: University of Toulouse, France; 2: University of Toulouse and CNRS, France

**Study of ferroelectric material to optimize supply voltage in n-type organic transistors**

Benjamin Ramos
Laboratoire Plasma et Conversion d’Energie (LAPLACE), France

---

1: CEMES-CNRS, University of Toulouse, CNRS, UPS, Toulouse, France; 2: LAAS-CNRS, University of Toulouse, CNRS, INP, Toulouse, France
capacitively-coupled radiofrequency plasma with application to deposition of nanocomposite layers

Vincent Garofano$^{1,2}$, Luc Stafford$^3$, Joanna Gorka$^1$, Freddy Gaboriau$^1$, Bernard Despax$^1$, Julien Boulon$^3$, Christine Joblin$^3$, Karine Demyk$^3$, Kremena Makasheva$^1$

1: LAPLACE, Université de Toulouse, France; 2: Université de Montréal, Canada; 3: IRAP-OMP, Université de Toulouse, France

12:30pm Lunch: Wednesday
- 2:00pm
2:00pm NTC Distinguished Lecturer: Prof. James E. Morris, IEEE Live Fellow "Nanoparticle Thin Films: Fabrication, Structure and Properties"
- 2:45pm Location: Ariane 1&2
2:45pm W1-3: T10: Nanostructures of oxide semiconductor materials
- 4:00pm Location: Ariane 1&2

Invited (30min):

**Nanotechnology practical teaching at school and university**
Marc Respaud
Institut National des Sciences Appliquées

Invited (30min):

**Functional metal oxide nanoparticles: synthesis and applications**
Lidia Santos, Daniela Gomes, Pedro Barquinha, Rodrigo Martins, Elvira Fortunato
CENIMAT/I3N and UNINOVA, FCT-UNL, Portugal

Ultra-sensitive SnO2 gas sensors based on hierarchical octahedra
Justyna Jonca$^1$, Andrey Ryzhikov$^1$, Audrey Chapelle$^3$, Philippe Ménini$^{3,2}$, Katia Fajerwerg$^{1,2}$, Myrtil Kahn$^1$, Pierre Fau$^{1,2}$
1: LCC-CNRS, France; 2: Université Fédérale de Toulouse, UT III Paul Sabatier, Toulouse, France; 3: LAAS-CNRS, France

2:45pm Invited (30min):

**Atom by Atom simulations of nano-materials processing**
Ioannis Deretzis$^1$, Filippo Giannazzo$^1$, Giuseppe G.N. Angilella$^2$, Luca Parisi$^1$, Antonino La Magna$^1$
1: Consiglio Nazionale delle Ricerche, Italy; 2: Dipartimento di Fisica dell’ Università di Catania; 3: INO-CNR BEC Center

2:45pm Invited (30min):

**M-STORM Reliability model applied to DSM Technologies**
A. Bensoussan
IRT Saint Exupery, France

2:45pm Invited (30min):

**Numerical Modelling of Magnetic Nanoparticle and Carrier Fluid Interactions**
Dezheng Darson Li$^1$, Guan Heng Yeoh$^{1,2}$, Victoria Timchenko$^1$, Heung-Fai Lam$^3$
1: The University of New South Wales, Australia; 2: Australian Nuclear Science and Technology Organisation, Australia; 3: City University of Hong Kong, Hong Kong

2:45pm Invited (30min):

**Atomic scale modeling to understand how matter organizes during growth of ultrathin materials in close relation with elaboration process parameters: climbing the scales**
Anne Hemeryck$^1$, Mathilde Guiltat$^1$, Nicolas
<table>
<thead>
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<td>4:30pm</td>
<td>W1-4: T10: Nanostructures of oxide semiconductor materials</td>
<td>Ariane 1&amp;2</td>
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<tr>
<td>5:30pm</td>
<td>Invited (30min): Synthesis of metal oxide nanoparticles by organometallic approach: from molecule to devices</td>
<td>Argos</td>
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<tr>
<td>5:30pm</td>
<td>Invited (30min): From small clusters to larger nanoparticles: Quantum calculations in TDDFT</td>
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<td>5:30pm</td>
<td>Control of Two-Dimensional Electron Density at Oxide Heterointerface using Atomic Layer Deposition</td>
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<td>Performance of Vertically Stacked Horizontal Si Nanowires Transistors: A 3D Monte Carlo / 2D Poisson Schrodinger Simulation Study</td>
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<td>5:30pm</td>
<td>Impact of Solvent on Silk Materials</td>
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<tr>
<td>5:30pm</td>
<td>Closing remarks</td>
<td>Ariane 1&amp;2</td>
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Salles¹, Nicolas Richard²
1: LAAS-CNRS, Université de Toulouse, CNRS, UPS, Toulouse, France; 2: CEA-DAM-DIF ; Bruyères-le-Châtel ; F-91297 Arpajon Cedex, France

¹: Aix Marseille Univ; 2: CNRS, CIaM, Marseille, France

¹: University of Glasgow, United Kingdom; 2: Gold Standard Simulations Ltd (Synopsys) , United Kingdom

Korea University, Korea, Republic of (South Korea)
Social Events

Welcome reception on Sunday, Oct., 9th – from 6:00pm to 8:00 pm
Place: The Congress Center Pierre Baudis

The following materials will be delivered to you at the registration desk:

1/ Your Conference Badge

2/ Tourist information a Toulouse map

3/ Pass Transport TISSEO for the Toulouse public transport network to use at your convenience:

4/ Invitation for the Reception in the Town Hall « Salles des Illustres » on Monday, Oct. 10th at 6:30 pm. Please do not forget this invitation. You will not be allowed to enter the Town Hall without it.
How to join the Town Hall from the Congress Center by walk (about 10min):

5/ Ticket for the visit of Toulouse historical center or Aeroscopia museum (Depending your choice on the online registration)

6/ Ticket for the Gala Dinner in the Hotel Dieu St Jacques, on Tuesday, October 11th at 8:00 pm (Depending your choice to attend or not)

How to join the Hotel Dieu St. Jacques from Place du Capitole by walk (15 min).
WI-FI connection in the Congress Center:

The WI-FI connection is available for all participants, with the following pass word:
Network: IEEE NMDC
login: IEEE NMDC
Password: passNMDC_2016

IEEE NMDC Secretariat

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(www.next-toulouse.fr)

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(www.fondation-stae.net)

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(www.cemes.fr)

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(www.lgc.inp-toulouse.fr)

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(www.cirimat.cnrs.fr)

Laboratoire de Physique et Chimie de Nano-Objets
(www.lpcno.insa-toulouse.fr)

Laboratoire de Chimie de Coordination
(www.lcc-toulouse.fr)