11th IEEE NMDC - Program

October, 9th 2016	October, 10th 2016	October, 11th 2016	October, 12th 2016
	08:00 – 08:30 Registration 08:30 – 09:00 Welcome/Opening 09:00 – 09:45 Plenary lecture	08:30 – 09:15 Plenary lecture	08:30 – 09:15 Plenary lecture
	09:45 – 10:45 Parallel sessions	09:15 – 10:30 Parallel sessions	09:15 – 10:30 Parallel sessions
	10:45 – 11:00 Coffee break (short)	10:30 – 11:00 Coffee break	10:30 – 11:00 Coffee break
	11:00 – 12:30 Parallel sessions	11:00 – 12:30 Parallel sessions	11:00 – 12:30 Parallel sessions
	12:30 – 14:00 Lunch	12:30 – 14:00 Lunch	12:30 – 14:00 Lunch
	14:00 – 15:30 DL Parallel sessions	14:00 – 16:00 Poster session	14:00 – 15:30 DL Parallel sessions
	15:30 – 16:00 Coffee break	16:00 – 19:00 Social excursion	15:30 – 16:00 Coffee break
18:00 – 20:00 Registration Welcome reception	16:00 – 18:00 Parallel sessions 18:30 – 19:30 Salle des Illustres	20:00 Conference Dinner	16:00 – 17:30 Parallel sessions 17:30 – 18:00 Closing remarks

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.

Special session IRT Saint Exupéry, Toulouse

Prof. Tony McNally
WMG, International Manufacturing Centre, University of Warwick, Coventry, CV4 7AL, UK

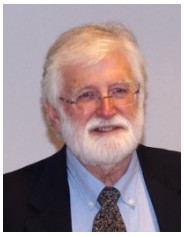
Title: Challenges in the Preparation of Composites of Polymers and Nanoparticles: From Molecule to Manufacture

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, "TiO_2 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 monolitically 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 aeorsol-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

6:00pm - 8:00pm **S-1: Registration and Welcome reception**
Location: Foyer Ariane

Date: Monday, 10/Oct/2016

8:00am - 8:30am **Registration**
Location: Foyer Ariane

8:30am - 9:00am **Opening remarks**
Location: Ariane 1&2

9:00am - 9:45am **Plenary 1: Prof. N. A. Burnham "New looks at old (nano)materials with modern scanning probe techniques"**
Location: Ariane 1&2

New Looks at Old Materials: Nano-mechanics and Nano-chemistry of Shale and Bitumen
Nancy Burnham
Worcester Polytechnic Institute, United States of America

9:45am - 10:45am

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

Invited (30min):

Scalable Assembly of Graphene Nanosheets into 3D Macroscopic Structures for Effective Thermal Management
Jie Lian, Guoqing Xin
Rensselaer Polytechnic Institute, United States of America

Advanced Vertically Aligned Carbon Nanotube Based Energy Storage Devices
Wang Xinghui, Sun Leimeng, Zhang Qing
Nanyang Technological University, Singapore

Towards Barrier Free Contacts

M2-1: T4: Nanostructures for future generation solar cells
Location: Spot

Optical properties of miniband formed in the InGaAs/GaAs quantum well solar cells by means of photoreflectance, photoluminescence, and photothermal spectroscopies
Atsuhiko Fukuyama[1], Kouki Matsuochi[1], Tubasa Nakamura[1], Hideaki Takeda[1], Hidetoshi Suzuki[1], Kasidit Toprasertpong[2], Masakazu Sugiyama[2], Yoshiaki Nakano[3], Tetsuo Ikari[1]
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,

M3-1: T2: Materials and devices for nanoelectronics
Location: Argos

Invited (30min):

Vertical devices for future nano-electronic applications
Nadine Collaert, Anabela Veloso, Trong Huynh-Bao, Dmitry Yakimets, Tsvetan Ivanov, Siva Ramesh, Philippe Matagne, Arturo Sibaja-Hernandez, Ziyang Liu, Clement Merckling, Niamh Waldron, Aaron Thean
Imec, Belgium

Bringing reconfigurable nanowire FETs to a logic circuits compatible process platform
Maik Simon, A. Heinzig, J. Trommer, T. Baldauf, T. Mikolajick, Walter Weber

	to n-type CNTFETs using Graphene Electrodes **P R Yasasvi Gangavarapu, Punith Chikkahalli Lokesh, Kunchinadka Narayana Bhat, Akshay Naik** Indian Institute of Science, India	**characterization and simulation** **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-Moussawi[1,2,3], Hussein Medlej[3], Ali Nourdine[1,2], Solenn Berson[4], Joumana Toufaily[3], Tayssir Hamieh[3], Lionel Flandin[1,2]** 1: Univ. Savoie Mont Blanc, LEPMI, F-73000 Chambéry, France; 2: CNRS, LEPMI, F-38000 Grenoble, France; 3: Univ. Libanaise, MCEMA, Campus Rafic Hariri, Hadath, Lebanon; 4: CEA, LITEN, Department of Solar Technologies, F-73375, Le Bourget du lac, France	NaMLab gGmbH, Germany **Resonant Frequency Tuning Technique for Selective Detection of Alcohols by TiO2 Nanorod based Capacitive Device** **Koushik Dutta, Basanta Bhowmik, Partha Bhattacharyya** Indian Institute of Engineering Science and Technology, India
10:45am - 11:00am	**Coffee break: M1** Location: Foyer Ariane		
11:00am - 12:30pm	**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 **Investigation of Carrier Recombination Process in Top-down Fabricated GaAs Nano-Disc Array Structure by Photoluminescence Measurements** **TETSUO IKARI[1], DAISUKE OHORI[1], AKIO HIGO[2], CEDRIC THOMAS[3], SEIJI SAMUKAWA[3],**

Doped carbon nanostructure for Cold-Field Emission Guns: Structural and EELS studies

Rongrong Wang[1,2], Aurélien Masseboeuf[1], David Neumeyer[1], Marc Monthioux[1], Alejandro Lopez-Bezanilla[3], Raul Arenal[2,4]

1: CEMES, France; 2: LMA-INA, Spain; 3: Materials Science Div., Argonne National Lab., USA; 4: Fundacion ARAID, Spain

Probing the electronic properties of CVD graphene superlattices

Mohamed Boutchich

Group of Electrical Engineering of Paris, France

Synthesis of (B- and/or N-) Substituted Carbon Nanoforms

Djamel Eddine Gourari[1], Flavien Valensi[1], Manitra Razafinimanana[1], Marc Monthioux[2], Sébastien Joulié[2], Raul Arenal[3]

1: LAPLACE, France; 2: CEMES, France; 3: INA, Spain

The unexpected complexity of filling double-wall carbon nanotubes with iodine-based 1D nanocrystals

Chunyang Nie[1,2], Anne-Marie Galibert[2], Brigitte Soula[2], Lucien Datas[3], Sloan Jeremy[4], Emmanuel Flahaut[2], Marc Monthioux[1]

1: Centre d'Elaboration des Matériaux et d'Etudes Structurales (CEMES), UPR-8011 CNRS, Université de Toulouse, France; 2: Centre Interuniversitaire de Recherche et d'Ingénierie des Matériaux (CIRIMAT), UMR-5085 CNRS, Université de Toulouse, France; 3: Centre de

Invited (30min):

Shape Elongation of Embedded Metal Nanoparticles Induced by Irradiation with Swift Heavy Ions / Cluster Ions

Hiroshi Amekura

Nat. Inst. for Mater. Sci. (NIMS), Japan

Ion-shaping of embedded gold hollow nanoshells into vertically aligned prolate morphologies

Pierre-Eugene Coulon[1], Julia Amici[1], Marie-Claude Clochard[1], Giancarlo Rizza[1], Sandrine Perruchas[2], Vladimir Khomenkov[3], Christian Dufour[3], Isabelle Monnet[3], Clara Grygiel[3]

1: Laboratoire des Solides Irradies, Ecole polytechnique, France; 2: Laboratoire de Physique de la Matière Condensée, Ecole polytechnique, France; 3: CIMAP-ENSICAEN, University of Caen, Caen, France

He-ion induced structural transformation of supported Ag nanoparticles

Ghassan Khadra[1], Caroline Andreazza-Vignolle[1], Pascal Anreazza[1], Marie-France Barthe[2], Thierry Sauvage[2], Amael Caillard[3], Anne-Lise Thomann[3], Pierre Desgardin[2]

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

KENSUKE NISHIOKA[1], ATSUHIKO FUKUYAMA[1]

1: University of Miyazaki, Japan; 2: WPI- Advanced Institute for Materials Research, Tohoku University, Sendai, Japan; 3: Institute of Fluid Science, Tohoku University, Sendai, Japan

Solution processed MoO2/ZnO Hetrojunction Electrical Characterstics

Hemant Kumar[1], Yogesh Kumar[1], Gopal Rawat[1], Chandan Kumar[1], Bhola Nath Pal[2], Satyabrata Jit[1]

1: Department of Electronics, IIT BHU, Varanasi, India; 2: School of Material Science and Technolgy, IIT BHU, Varanasi, India

Solution-Processed Colloidal ZnO Quantum Dots Based Photojunction Photodetector

Yogesh Kumar[1], Hemant Kumar[1], Gopal Rawat[1], Chandan Kumar[1], Bhola Nath Pal[2], Satyabrata Jit[1]

1: Department of Electronics, IIT (BHU), Varanasi India, India; 2: School of Material Science and Technology, IIT (BHU), Varanasi India, India

Ultrahigh Storage Densities in Nanoscale Patterned Probe Phase Change Memories

Hasan Hayat, Krisztian Kohary, C. David Wright

University of Exeter, United Kingdom

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

12:30pm - 2:00pm **Lunch: Monday**

2:00pm - 2:45pm **NTC Distinguished Lecturer1: Prof. Yonhua Tzeng, IEEE Fellow "Diamond and graphene nanotechnology for energy storage and optoelectronic applications"**
Location: **Ariane 1&2**

2:45pm - 4:00pm

M1-3: T1: Graphene and carbon nanotubes based materials and devices
Location: **Ariane 1&2**

Nanoscale Thermal Transport in Single, Bilayer Graphene, and Graphite

Hamed Gholivand, Nazli Donmezer
Middle East Technical University, Turkey

Fabrication and Characterization of Graphene Low Pressure Gas Sensor

Lina Tizani, Irfan Saadat
Masdar Institute of sciennce and technology, United Arab Emirates

A Low Cost Fabrication Method for Fast Response Gas Sensor Based on DWCNTs

Lin Yang[1,2], Christophe Vieu[1], Emmanuel Flahaut[2,3]
1: LAAS-CNRS, Université de Toulouse, CNRS, INSA; 2: CIRIMAT, UMRCNRS 5085; 3: Université Paul Sabatier

Engineering a PVD Based Graphene Synthesis Method

Udit Narula, Cher Ming Tan
Chang Gung University, Taiwan,

M2-3: T7: Metamaterials and plasmonic devices
Location: **Spot**

Invited (30min):

Hyperuniform plasmonic metasurfaces, controlling light with correlated disorder

Marta Castro-Lopez[1], Steven Sellers[2], Michele Gaio[1], George Gkantzounis[2], Marian Florescu[2], Riccardo Sapienza[1]
1: King's College London, London, United Kingdom; 2: University of Surrey, Guildford, United Kingdom

Plasmonic properties of ion-shaped nanoparticles

Giancarlo Rizza
Ecole polytechnique, France

Tuning the linear and non-linear optical response of orthogonal dimer antennas for metasurfaces

Peter R. Wiecha[1], Leo-Jay Black[1,2], Yudong Wang[2,3], C. H. de Groot[3], Vincent Paillard[1], Christian Girard[1], Otto L. Muskens[2], Arnaud Arbouet[1]
1: CEMES-CNRS, University of Toulouse, CNRS, UPS, Toulouse, France; 2: Physics and Astronomy, Faculty of Physical Sciences and Engineering,

M3-3: T2: Materials and devices for nanoelectronics
Location: **Argos**

Tuning Coulomb Blockade in Ultra-Small Nanoparticle Self-Assemblies, at Room-Temperature

Simon Tricard[1], Olivier Saïd-Aïzpuru[1], Donia Bouzouita[1], Suhail Usmani[1], Angélique Gillet[1], Marine Tassé[2], Romuald Poteau[1], Guillaume Viau[1], Philippe Demont[3], Julian Carrey[1], Bruno Chaudret[1]
1: LPCNO, INSA, CNRS, Université de Toulouse; 2: LCC, CNRS, Université de Toulouse,; 3: CIRIMAT, CNRS, Université de Toulouse

Joule Heating Effects in Nanoscale Carbon-based Memory Devices

Tobias Albert Bachmann[1], A. M. Alexeev[1], W. W. Koelmans[2], F. Zipoli[2], A. K. Ott[3], C. Dou[3], A. C. Ferrari[3], V. K. Nagareddy[1], M. F. Craciun[1], V. P. Jonnalagadda[2], A. Curioni[2], A. Sebastian[2], E. Eleftheriou[2], C. D. Wright[1]
1: University of Exeter, United Kingdom; 2: IBM Research Zurich, Switzerland; 3: University of Cambridge, United Kingdom

Taiwan, Republic of China

Ultra-Thin SiO2 Dielectric Characteristics Using E-beam Evaporated System on HOPG and CVD Graphene

H. J. Hwang[1,2], Lanxia Cheng[1], A. T. Lucero[1], B. H. Lee[2], Jiyoung Kim[1]

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 TERVER[1,2], Melanie GAUVIN[1], Thomas ALNASSER[1], Ines ABID[2], Adnen MLAYAH[2], Shenqui XIE[3], Juergen BRUGGER[3], Benoit VIALLET[1], Laurence RESSIER[1], Jérémie GRISOLIA[1]

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

Experimental and simulation study of a high current 1D silicon nanowire transistor using heavily doped channels

Vihar Petkov Georgiev[1], Muhammad M. Mirza[1], Alexandru-Iustin Dochioiu[1], Fikru-Adamu Lema[1], Slavatore M. Amoroso[2], Ewan Towie[2], Craig Riddet[2], Donald A. MacLaren[1], Asen Asenov[1], Douglas J. Paul[1]

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

Differential Hall characterisation of shallow strained SiGe layers

Richard Daubriac[1], Mahmoud Abou Daher[1], Filadelfo Cristiano[1], Emmanuel Scheid[1], Sylvain Joblot[2], David Barge[2]

1: LAAS, CNRS and Univ. of Toulouse, 7 av. Du Col. Roche, 31400 Toulouse, France; 2: STMicroelectronics, 850 rue Jean Monnet, 38926 Crolles, France

HfOx complementary resistive switches

Marina Labalette[1,4], Serge Ecoffey[1,2], Simon Jeannot[3], Abdelkader Souifi[2,4], Dominique Drouin[1,2]

1: Institut Interdisciplinaire d'Innovation Technologique (3IT), Universite de Sherbrooke, Canada; 2: Laboratoire Nanotechnologies Nanosystemes (LN2) - CNRS UMI-3463; 3: STMicroelectronics; 4: Laboratoire Nanotechnologies Nanosystemes (LN2) - CNRS UMI-3463,

4:00pm - 4:30pm **Coffee break: M2**
Location: Foyer Ariane

4:30pm - 6:00pm

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

Invited (30min):

III-V heterojunction nanowire tunnel FETs monolitically integrated on silicon

Kirsten Emilie Moselund[1], Davide Cutaia[1], Heinz Schmid[1], Mattias Borg[1], Saurabh Sant[2], Andreas Schenk[2], Heike Riel[1]
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 Balocchi[1], Sawsen Azaizia[1], Hélène Carrère[1], Thierry Amand[1], Alexandre Arnoult[2], Chantal Fontaine[2], Baoli Liu[3], Xavier Marie[1]
1: Universite´ 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 Azaizia[1], Andrea Balocchi[1], Delphine Lagarde[1], Alexandre Arnoult[2], Xavier Marie[1], Chantal Fontaine[2], Hélène Carrère[1]
1: Laboratoire de Physique et

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

Photoluminescence quenching in hybrid gold/MoSe2 nanosheets

Ines Abid[1], Jiangtan Yuan[2], weibing Chen[2], Sina Najmaei[3], Patrick Benzo[1], Renaud Péchou[1], Adnen Mlayah[1], Jun Lou[2]
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 Pander[1], Keisuke Takano[2], Makoto Nakajima[2], Akimitsu Hatta[1], Hiroshi Furuta[1]
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 Schaepers[1], Sebastian Heedt[1], Andreas Bringer[2], Hilde Hardtdegen[1], Juergen Schubert[1], Detlev Gruetzmacher[1], Michael Kammermeier[3], Paul Wenk[3], John Schliemann[3], Werner Prost[4]
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 Weeraddana[1], Malin Premaratne[1], David Andrews[2]
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 Boninelli[1], Marta Agati[1,2,3], Guillaume Amiard[1],

Chimie des Nano-Objets, France; 2: Laboratoire d'Analyse et d'Architecture des Systèmes, France

Fabrication of GaAs nanowires and GaAs-Si axial heterostructure nanowires on Si (100) substrate for new applications

Aurélie LECESTRE[1,2], Nicolas MALLET[1], Mickael MARTIN[3], Thierry BARON[3], Guilhem LARRIEU[1]

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 Omeis[2], Fernando Gonzalez-Posada[1], Laurent Cerutti[1], Rafik Samaali[2], Emmanuel Centeno[2], Thierry Taliercio[1]

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

Vincent Paillard[4], Paola Castrucci[5], Richard Dolbec[6], My Alì El Khakani[3]

1: CNR IMM, Via S. Sofia 64, I-95123 Catania, Italy; 2: Dipartimento di Fisica e Astronomia, Università di Catania, Via S. Sofia 64, I-95123 Catania, Italy,; 3: INRS-EMT, 1650 Blvd. Lionel Boulet, Varennes, QC, J3X 1S2, Canada; 4: Cemes-CNRS, 29, rue Jeanne Marvig, BP 94347, 31055 Toulouse Cedex 4 , France; 5: Dipartimento di Fisica, Università di Roma "Tor Vergata", Via della Ricerca Scientifica 1, Roma, 00133, Italy; 6: Tekna Plasma Systems Inc., 2935 Industrial Blvd., Sherbrooke, QC, J1L 2T9, Canada

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

6:30pm - 8:30pm **Social event: Capitole, Salle des illustres**

Date: Tuesday, 11/Oct/2016

8:30am - 9:15am **Plenary 2: Prof. Jan Linnros "Silicon at the nanoscale using lithography control: Nanowires, nanopores and quantum dots"**
Location: Ariane 1&2

9:15am - 10:30am

T1-1: T12 + T13: Nanostructures and devices for biomedical applications and Standards and safety issues of nanotechnology
Location: Ariane 1&2

Invited (30min):

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

Enrique Navarro
Spanish National Research Council, Spain

Bio-imaging of Lung Diseases using Luminescent Graphene Nanocrystals

Tanveer Ahmad Tabish[1], Liangxu Lin[1], Farhat Jabeen[2], Muhammad Ali[2], Shaowei Zhang[1]
1: University of Exeter, United Kingdom; 2: Government College University, Faisalabad, Pakistan

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Controlled synthesis of core-shell Fe@Au faceted Nanoparticles

Patrizio Benzo[1], Magali Benoit[1], Nathalie Tarrat[1], Cyril Langlois[2], Raul Arenal[3], Béatrice Pécassou[1], Arnaud Le Priol[1], Nicolas Combe[1], Anne Ponchet[1], Marie-José Casanove[1]
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

T2-1: T3: Materials and devices for energy and environmental applications
Location: Argos

Invited (30min):

TiO2 and ZnO-based nanomaterials for applications in water treatment

Giuliana Impellizzeri
CNR-IMM, Catania, Italy

Water-Free Synthesis of Monodisperse Nickel(0) Nanoparticles

Koyel Bhattacharyya, Nicolas Mézailles
Université Paul Sabatier, France

Miniaturized 3D gas sensors based on silicon nanowires for ppb range detection

Brieux DURAND, Aurélie LECESTRE, Philippe MENINI, Guilhem LARRIEU
LAAS-CNRS, France

Interfacial impedance based electrochemical detection of carbon dioxide using RTIL

Rujuta Munje, Edward Graef, Shalini Prasad
University of Texas Dallas, United States of America

10:30am - 11:00am **Coffee break: T1**
Location: Foyer Ariane

11:00am - 12:30pm

T1-2: T12 + T13: Nanostructures and devices for biomedical applications and Standards and safety issues of nanotechnology
Location: Ariane 1&2

Interfacial Tuning for Detection of Cortisol in

T2-2: T3: Materials and devices for energy and environmental applications
Location: Argos

Invited (30min):

Sustainable Approaches in the Design and

Sweat using ZnO Thin Films for Wearable Biosensing

Shalini Prasad[1], Rujuta Munje[2], Sriram Muthukumar[3]
1: University of Texas Dallas, United States of America; 2: University of Texas Dallas, USA; 3: Enlisense LLC

Electronic bracelet for alochol lifestyle monitoring

David Kinnamon[1], Anjan Panneer Selvam[1], Sriram Muthukumar[2], Shalini Prasad[1]
1: University of Texas Dallas, United States of America; 2: Enlisense LLC

Probing electrical activity of single neurons based on 1D nanostructures : from extra to intracellular interfacing.

Adrien CASANOVA[1], Marie-Charline BLATCHE[1], Fabrice MATHIEU[1], Aurélie LECESTRE[1], Cécile FERRE[2], Daniel GONZALEZ-DUNIA[2], Liviu NICU[1], Guilhem LARRIEU[1]
1: LAAS-CNRS, Université de Toulouse, CNRS, Toulouse, France.; 2: CPTP INSERM UMR 1043, CNRS UMR 5282, Université Toulouse.

Ring nanoelectrodes integrated into microwell arrays for the analysis of mitochondria isolated from leukemic cells

Gabriel Lemercier[1,2], Fadhila Sékli-Belaïdi[1], Suresh Vajrala[3], Stéphane Arbault[3], Jérôme Launay[1], Jean-Emmanuel Sarry[2], Pierre Temple-Boyer[1]
1: LAAS-CNRS, Toulouse, France; 2: CRCT, Toulouse, France; 3: ISM, Bordeaux, France

Bifunctional silica nanoparticles for the exploration of Pseudomonas aeruginosa biofilm

Mauline Laila[2], Marie Gressier[2], Peter Hammer[3], Sidney Ribeiro[4], JMA Caiut[5], Marie-Joëlle Menu[2], Christine Roques[1]
1: Université Paul Sabatier, LGC, UMR 5503, France; 2: Université Paul Sabatier, CIRIMAT, UMR-CNRS 5085, France; 3: São Paulo State University, Laboratório de Espectroscopia de Fotoelétrons, LEFE, Institute of Chemistry, Brazil; 4: São Paulo State University, Institute of Chemistry, Brazil; 5: São Paulo State University, Department of Chemistry, FFLCRP, Brazil

Preparation of Polymer Based Insulators and Electrolytes

Nuria García[1], Aranzazu Martínez-Gómez[1], Julio Guzmán[1], Alberto Mejía[2], Francisco Gonzalez[1], Aitor Rubio[1], Raquel de Francisco[3], Pilar Tiemblo[1]
1: Consejo Superior de Investigaciones Científicas, Spain; 2: Chemical Engineering Department, University of Huelva, Spain; 3: Laiex S.L, Valencia, Spain

Novel electrical properties of extruded LDPE-GnP filled nanocomposites

Xiangdong Xu, Karolina Gaska, Rian Hafiizh Azhari, Roland Kádár, Stanislaw Gubanski
Chalmers univerisity of technology, Sweden

On-chip carbide derived carbon films for high performance micro-supercapacitors

Kevin BROUSSE[1], Peihua HUANG[1], Sebastien PINAUD[2], Marc RESPAUD[2,3], Bruno CHAUDRET[2], Christophe LETHIEN[4], Pierre-Louis TABERNA[1], Patrice SIMON[1]
1: CIRIMAT (UPS), France; 2: LPCNO (INSA), France; 3: AIME (INSA), France; 4: IEMN, France

Micromolar Nitrate Electrochemical Sensors for Seawater Analysis with Silver Nanoparticles Modified Gold Electrode

Emilie Lebon[1,3], Jérémy Cure[1], Pierre Fau[1,2], Myrtil Kahn[1], Christine Lepetit[1], Katia Fajerwerg[1,2]
1: Laboratoire de Chimie de Coordination (LCC), CNRS, 205 route de Narbonne, 31077 Toulouse Cedex 4, France; 2: Université Paul Sabatier, UT III, 118 route de Narbonne, 31062 Toulouse Cedex 9, France; 3: RTRA “Sciences et Technologies pour l’Aéronautique et l’Espace” F-31030 Toulouse, France

Capacitive Modeling of TiO2 Nanotube based Gas/Vapor Sensor Devices

Arnab Hazra
Birla Institute of Technology and Science-Pilani, Pilani Campus, Vidya Vihar, Rajasthan-333031, India, India

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

12:30pm - 2:00pm **Lunch: Tuesday**

2:00pm - 4:00pm **Poster session**
Location: Foyer Ariane

Surface Plasmon Multiplexer employing Multimode Interferometer

Asahi Sumimura[1], Kotaro Nakayama[1], Masashi Ota[1,2], Yuya Ishii[1], Mitsuo Fukuda[1]
1: Toyohashi University of Technology, Japan; 2: Japan Society for the Promotion of Science, Japan

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

YONG-BEOM SHIN[1,2], In-Kyu Lee[1,3], Young Kyoung Oh[1,2], Ki Joong Lee[1], Won-Ju Cho[4]
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

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Electrical properties of nanocomposite thin films deposited in ECR plasma

Mouloud Kihel[2], Richard Clergereaux[1], Salah Sahli[2]
1: LAPLACE, France; 2: Laboratoire de Microsystèmes et Instrumentation, Université de Constantine, Algeria

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Defect investigation of excimer laser annealed silicon

Richard Monflier[1], Toshiyuki Tabata[2], Filadelfo Cristiano[1], Inès Toque-Tresonne[2], Fulvio Mazzamuto[2], Julien Roul[1], Maria-Teresa Hungria-Hernandez[3], Corinne Routaboul[4], Elena Bedel-Pereira[1]
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

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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
Chungbnuk 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 Bhowmick[1,2], Mario Iodice[1], Mariano Gioffre[1], Giuseppe Coppola[1], Giovanni Breglio[2], Andrea Irace[2], Michele Riccio[2], Gianpaolo Romano[2]
1: Institute Of Microelectronics and Microsystem, Italy; 2: University of Fedrico II, Dept. of Information and electrical engineering

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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

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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

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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

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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[3], Victoria Shalabaeva[3], 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 Séguy[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

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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

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

Isman Souleiman[1], 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 µm 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

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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: 1Instituto 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

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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 Vacca[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

et de Microelectronique de Montpellier (LIRMM), Montpellier, France

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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

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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 Marvine[1,2], PUGLIARA Alessandro[1,3], MLAYAH Adnen[3], MONJE Marie-Carmen[2], ROQUES Christine[2], DESPAX Bernard[1], BONAFOS Caroline[3], CARLES Robert[3], MAKASHEVA Kremena[1]
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 - 9:15am **Special session IRT St. Exupéry, Plenary 3: Prof. Tony McNally "Challenges in the Preparation of Composites of Polymers and Nanoparticles: From Molecule to Manufacture"**
Location: Ariane 1&2

9:15am - 10:30am **W1-1: T16: Nanocomposite materials for aeronautics and space applications**
Location: Ariane 1&2

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

W2-1: T8: Photonic materials and devices
Location: Argos

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[2], Martin Vallo[2], 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

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

Adriana Scarangella[1,2], Guillaume Amiard[1], Riccardo Reitano[3], Simona Boninelli[1], Giorgia Franzo[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

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Enhanced nonlinear optical properties from individual silicon nanowires

Peter Wiecha[1,2], Arnaud Arbouet[1,2], Christian Girard[1,2], Thierry Baron[4,5], Aurélie Lecestre[1,3], Guilhem Larrieu[1,3], Vincent Paillard[1,2]
1: University of Toulouse, France; 2: CEMES-CNRS; 3: LAAS-CNRS; 4: LTM; 5: University of Grenoble-Alpes

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Evolutionary Multi-Objective Optimization for Multi-Resonant Photonic Nanostructures

Peter R. Wiecha[1], Arnaud Arbouet[1], Christian Girard[1], Aurélie Lecestre[2], Guilhem Larrieu[2], Vincent Paillard[1]

1: CEMES-CNRS, University of Toulouse, CNRS, UPS, Toulouse, France; 2: LAAS-CNRS, University of Toulouse, CNRS, INP, Toulouse, France

10:30am - 11:00am **Coffee break: W1**
Location: Foyer Ariane

11:00am - 12:30pm

W1-2: T15: Plasma assisted deposition of nanocomposite materials
Location: Ariane 1&2

Invited (30min):

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

Fiorenza Fanelli[1], Francesco Fracassi[1,2]
1: CNR-Institute of Nanotechnology (NANOTEC), Bari, Italy; 2: Department of Chemistry, University pf Bari "Aldo Moro", Bari, Italy

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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 Profili[1,2], Nicolas Gherardi[2], Nicolas Naudé[2], Luc Stafford[1]
1: Département de physique, Université de Montréal, Montréal, Canada; 2: LAPLACE, Université de Toulouse, CNRS, UPS, INPT, Toulouse, France

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

Laurent Milliere[1], Kremena Makasheva[2], Christian Laurent[2], Bernard Despax[2], Boudou Laurent[1], Teyssedre Gilbert[2]
1: University of Toulouse, France; 2: University of Toulouse and CNRS, France

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Experimental study of nanoparticle formation dynamics in HMDSO-Ar asymmetric

W2-2: T9: Organic semiconductor materials, devices and applications
Location: Argos

Invited (30min):

Shear-Coated High Performance Organic Conducting and Semiconducting Thin Films for Transistor and Solar Cell Applications

Stefan Mannsfeld
Center of Advancing Electronics Dresden, 01062 Dresden, Germany

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Invited (30min):

Submicron-Channel-Length Organic Thin-Film Transistors on Flexible Substrates

Hagen Klauk
Max Planck Institute for Solid State Research, Germany

Application of [Pt(II)(di-tert-butylsalophen)] complexes within organic devices: deep red emission, bistable light-emitting diodes and operational stability

Benoit BLONDEL[1,2], Anaïs COLIN[1], Manuel LOPES[1], Fabienne ALARY[3], Cédric RENAUD[1], Isabelle SASAKI[2]
1: LAboratoire PLAsma et Conversion d'Energie, UMR5213, 118 route de Narbonne 31062 Toulouse, France; 2: Laboratoire de Chimie de Coordination, UPR8241, 205 route de Narbonne 31077 Toulouse, France; 3: Laboratoire de Chimie et Physique Quantiques, UMR5626, 118 route de Narbonne 31062 Toulouse, France

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

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

capacitively-coupled radiofrequency plasma with application to deposition of nanocomposite layers

Vincent Garofano[1,2], Luc Stafford[2], 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 - 2:00pm **Lunch: Wednesday**

2:00pm - 2:45pm **NTC Distinguished Lecturer2: Prof. James E. Morris, IEEE Live Fellow "Nanoparticle Thin Films: Fabrication, Structure and Properties"**

Location: **Ariane 1&2**

2:45pm - 4:00pm

W1-3: T10: Nanostructures of oxide semiconductor materials

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

Lídia 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

W2-3: T6: Modeling and simulation of nanomaterials, structures, and devices

Location: **Argos**

Invited (30min):

Atom by Atom simulations of nano-materials processing

Ioannis Deretzis[1], Filippo Giannazzo[1], Giuseppe G.N. Angilella[2], Luca Parisi[3], Antonino La Magna[1]

1: Consiglio Nazionale delle Ricerche, Italy; 2: Dipartimento di Fisica dell' Università di Catania; 3: INO-CNR BEC Center

M-STORM Reliability model applied to DSM Technologies

A. Bensoussan

IRT Saint Exupery, France

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

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

		Salles[1], Nicolas Richard[2] 1: LAAS-CNRS, Université de Toulouse, CNRS, UPS, Toulouse, France; 2: CEA-DAM-DIF ; Bruyères-le-Châtel ; F-91297 Arpajon Cedex, France
4:00pm - 4:30pm	**Coffee break: W2** Location: **Foyer Ariane**	
4:30pm - 5:30pm	**W1-4: T10: Nanostructures of oxide semiconductor materials** Location: **Ariane 1&2**	**W2-4: T6: Modeling and simulation of nanomaterials, structures, and devices** Location: **Argos**
	Invited (30min): **Synthesis of metal oxide nanoparticles by organometallic approach: from molecule to devices** **Myrtil L. Kahn** CNRS, France	**Invited (30min):** **From small clusters to larger nanoparticles: Quantum calculations in TDDFT** **Hans-Christian Weissker[1,2]** 1: Aix Marseille Univ; 2: CNRS, CINaM, Marseille, France
	Control of Two-Dimensional Electron Density at Oxide Heterointerface using Atomic Layer Deposition **Hae Jun Jung, Sang Woon Lee** Department of Physics / Division of Energy Systems Research, Ajou University, Republic of Korea	**Performance of Vertically Stacked Horizontal Si Nanowires Transistors: A 3D Monte Carlo / 2D Poisson Schrodinger Simulation Study** **Talib Al-Ameri[1], Vihar Georgiev[1], Fikru Adamu-Lema[1], Toufik Sadi[1], Ewan Towie[2], Craig Riddet[2], Craig Alexander[2], Asen Asenov[1,2]** 1: University of Glasgow, United Kingdom; 2: Gold Standard Simulations Ltd (Synopsys) , United Kingdom
		Impact of Solvent on Silk Materials **Yoonjung Kim, Myeongsang Lee, Hyunjoon Chang, Sungsoo Na** Korea University, Korea, Republic of (South Korea)
5:30pm - 6:00pm	**Closing remarks** Location: **Ariane 1&2**	

Social Events

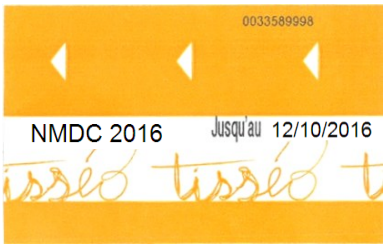
Welcome reception on Sunday, Oct., 9th – from 6:00pm to 8:00 pm
Place: The Congress Center Pierre Baudis

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

1/ Your Conference Badge

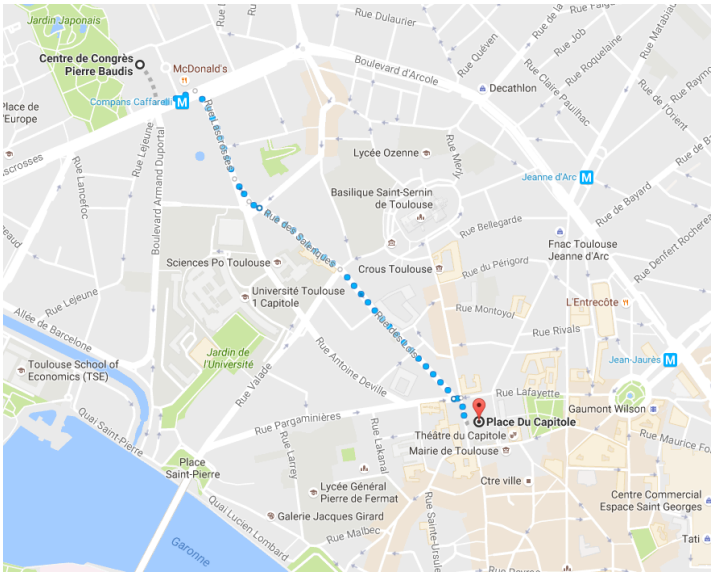
2/ Tourist information a Toulouse map

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.

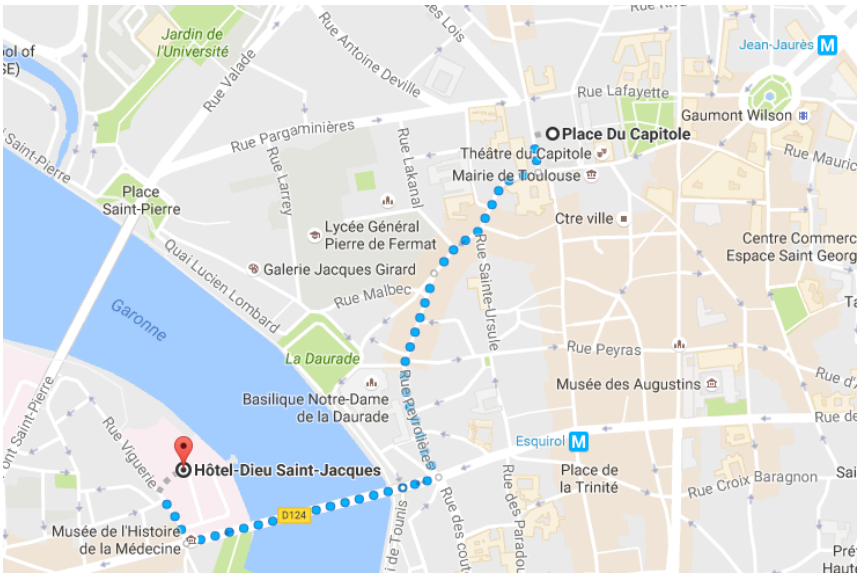
How to join the Town Hall from the Congress Center by walk (about 10min):



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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Research Foundation STAE: Sciences and Technologies in Aeronautics and Space – RTRA STAE
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(www.cemes.fr)

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(www.laas.fr)

Laboratoire de Génie Chimique
(www.lgc.inp-toulouse.fr)

Centre Inter-universitaire de Recherche et d'Ingénierie des Matériaux
(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)

Notes