

Programme



IEEE



Nanotechnology Council®



IEEE 12th International Conference on Nanotechnology

# IEEE NANO 2012

20–23 August 2012

International Convention Centre, Birmingham, UK

[www.ieeenano2012.org](http://www.ieeenano2012.org)

**IOP** Institute of Physics



UNIVERSITY OF  
BIRMINGHAM

# FORTHCOMING INSTITUTE CONFERENCES

## AUGUST 2012 – JULY 2014

### 2012

**29–31 August**

**Modern Practice in Stress and Vibration Analysis Conference (MPSVA2012)**

University of Glasgow, Glasgow, UK  
Organised by the IOP Applied Mechanics Group

**3–5 September**

**Physics meets Biology**

University of Oxford, Oxford, UK  
Organised by the IOP Biological Physics Group

**3–6 September**

**Photon12**

Durham University, Durham, UK  
Organised by the IOP Optics and Photonics Division

**3–7 September**

**CMD-24 (ECOSS-29, ECSCD-11, CMMP-12)**

Edinburgh International Conference Centre, Edinburgh, UK

**5–7 September**

**Computational Plasma Physics**

The Grand Hotel, Brighton, UK  
Organised by the IOP Computational Physics Group

**10–11 September**

**Magnetic Tight Binding**

Institute of Physics, London, UK  
Organised by the IOP Computational Physics Group

**20–21 September**

**A Celebration of the 50th Anniversary of the Diode Laser**

University of Warwick, Coventry, UK  
Organised by the IOP Quantum Electronics and Photonics and Semiconductor Physics Groups

**26–27 November**

**Biomolecular Thermodynamics**

Institute of Physics, London, UK  
Organised by the IOP Biological Physics Group

**17–18 December**

**Topical Research Meetings on Physics: Quantum technologies: taking concepts through to implementations**

Institute of Physics, London, UK

### 2013

**17–18 January 2013**

**Ferroelectrics UK 2013**

University of Sheffield, Sheffield, UK  
Organised by the IOP Materials and Characterisation Group

**6–8 March 2013**

**Adiabatic Quantum Computation 2013**

Institute of Physics, London, UK  
Organised by the IOP Quantum Optics, Quantum Information, Quantum Control Group

**25–28 March**

**The 40th IOP Annual Conference on Plasma Physics**

University of York, York, UK  
Organised by the IOP Plasma Physics Group

**25–28 March**

**Interdisciplinary Surface Science Conference (ISSC-19)**

East Midlands Conference Centre, Nottingham, UK  
Organised by the IOP Thin Films and Surfaces Group

**7–10 April**

**IOP Nuclear Physics Group Conference 2013**

University of York, York, UK  
Organised by the IOP Nuclear Physics Group

**10–12 April**

**Dielectrics 2013**

University of Reading, Reading, UK  
Organised by the IOP Dielectrics Group

**8–12 July**

**International Conference on Neutron Scattering (ICNS2013)**

Edinburgh International Conference Centre, Edinburgh, UK

**3–6 September**

**Electron Microscopy and Analysis Group Conference 2013 (EMAG)**

University of York, York, UK  
Organised by the IOP Electron Microscopy and Analysis Group

**4–6 September**

**PR'13: International Conference on Photorefractive Effects, Materials and Devices**

The Winchester Hotel, Winchester, UK  
Organised by the IOP Optical Group and the IOP Quantum Electronics and Photonics Group

**9–11 September**

**Physical Aspects of Polymer Science**

University of Sheffield, Sheffield, UK  
Organised by the IOP Polymer Physics Group

**16–18 September**

**Sensors & their Applications XVII**

Rixos Libertas, Dubrovnik, Croatia  
Organised by the IOP Instrument Science and Technology Group

**16–19 September**

**EuroDisplay 2013 (33rd International Display Research Conference)**

Imperial College London, London, UK  
Organised by the IOP Optical Group and Society for Information Display

**18–20 November**

**High-speed imaging for dynamic testing of materials and structures – 21st DYMAT Technical Meeting**

Institute of Physics, London, UK  
Organised jointly by the IOP Applied Physics and Technology Division and DYMAT Association

### 2014

**21–25 July**

**ICSOS'11: 11th International Conference on the Structure of Surfaces**

University of Warwick, Coventry, UK  
Organised by the IOP Thin Films and Surfaces Group

See [www.iop.org/conferences](http://www.iop.org/conferences)

for a full list of IOP one-day meetings.

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# IEEE 12th International Conference on Nanotechnology

# IEEE NANO 2012

Dear Delegate

On behalf of the Conference Committee, we have great pleasure in welcoming you to the IEEE NANO 2012 conference. IEEE NANO is the flagship nanotechnology conference of IEEE, and one of the top nanotechnology conferences in the world. The IEEE NANO conference has been held annually since the first meeting in 2001 in Hawaii. This is the first time the conference has come to the United Kingdom. It is therefore a particular honour to be able to welcome delegates from all over the world to Birmingham, the second largest city in the UK, where Watt developed the steam engine and Tolkien's imagination was fashioned.

IEEE NANO 2012 features world renowned speakers and high quality papers. Our six plenary speakers are all leading scientists in nanotechnology; they include Sir Konstantin Novoselov, the 2010 Nobel Laureate in Physics, and Sir John Pendry. Our invited speakers come from prestigious research groups. Their presentations, together with the many other oral and poster contributions, will make the conference a special opportunity to gain the latest information on research trends, directions, and breakthroughs in nanotechnology. The conference sessions include 300 oral presentations and over 100 poster presentations and the meeting has attracted numerous industrial sponsors and exhibits introducing state of the art equipment.

The conference is sponsored by the IEEE Nanotechnology Council and managed jointly with Institute of Physics. The conference could not succeed without the dedicated support provided by the IOP Conference Team, Conference Committee, Technical Committee and Advisory Committee. The Conference Committee would also like to gratefully acknowledge the support of sponsors and exhibitors, who provide commercial insight and contribute significantly to the promotion of the conference. Please take some time to meet with the exhibitors in Hall 3.

IEEE NANO 2012 is timed to begin one week after the London 2012 Olympic Games. Conference delegates will be able to visit the venues of the Games. Birmingham is not far away from London and is surrounded by examples of British heritage, not least Stratford-upon-Avon the birthplace of Shakespeare. We hope it will be convenient for delegates to visit such sites after the conference.

We hope that you find the conference scientifically satisfying, socially enjoyable and personally productive.

**Professor Kyle Jiang**

IEEE NANO 2012 General Chair  
Micro/Nanotechnology Research Laboratory  
University of Birmingham

**Professor Richard E Palmer**

IEEE NANO 2012 General Co-Chair  
Nanoscale Physics Research Laboratory  
University of Birmingham

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## Programme

### Tuesday 21 August

08.00 *Hall 3 foyer*  
Registration

09.00 *Hall 1*  
Chair: P Famouri, West Virginia University, USA, and J Boland, Trinity College Dublin, Ireland  
**Opening of IEEE NANO 2012**  
K Jiang, and R E Palmer, General Chair and General Co-Chair of the Conference  
**Welcome to Birmingham**  
D Eastwood, Vice Chancellor of the University of Birmingham, UK  
**Welcome to IEEE NANO 2012**  
S Goodnick, IEEE NTC President  
**Conference report**  
K Jiang, General Chair of the Conference

09.30 *Hall 1*  
**(plenary) Non locality and the limits to sub wavelength focusing (8571)**  
J Pendry, Imperial College London, UK

10.15 **(plenary) Piezotronics and piezo-phototronics (8568)**  
Z Wang, Georgia Institute of Technology, USA

11.00 *Hall 3*  
Opening of exhibition and poster display, and refreshment break

<i>Hall 1</i>	<i>Hall 6</i>	<i>Hall 7a</i>	<i>Hall 7b</i>	<i>Hall 8a</i>	<i>Hall 8b</i>	<i>Hall 11b</i>
<b>TuA2T5: Nanomaterials/ nanoparticles, characterization and application</b> Chair: R Palmer, University of Birmingham, UK, and Q Guo, University of Birmingham, UK	<b>TuA2T1: Nanoscale lithography</b> Chair: Z Cui, Chinese Academy of Sciences, China, and S R McKibbin, University of New South Wales, Australia	<b>TuA2T4: Nanosensors and actuators I: Graphene and carbon nanotube based sensors</b> Chair: J T-H Wang, John Hopkins University, USA, and T T Tung, University of South Brittany, France	<b>TuA2T3: Nanomaterials for energy applications</b> Chair: M Griep, US Army Research Laboratory, USA, and L Que, Louisiana Tech University, USA	<b>TuA2T6: Nanorobotics, nanomanufacturing I</b> Chair: N Xi, Michigan State University, USA, and T Fukuda, Nagoya University, Japan	<b>TuA2T2: Spintronics</b> Chair: C Anthony, University of Birmingham, UK and M Sullivan, Tyco Electronics, UK	

	Hall 1	Hall 6	Hall 7a	Hall 7b	Hall 8a	Hall 8b	Hall 11b
11.30	<b>(invited) Pressure free sintering of silver nanoparticles to silver substrate using weakly binding ligands (7044)</b> <u>S Mannan</u> , Kings College London, UK	<b>(invited) Chemical amplified fullerene resists, spin-on fullerene hardmasks and high aspect ratio etching (8802)</b> <u>A Robinson</u> , University of Birmingham, UK	<b>(invited) Graphene on different substrates for sensing applications (9224)</b> <u>M Spencer</u> , Cornell University, USA	<b>(invited) Nanomaterials and nanocomposites for high energy/high power supercapacitors (7835)</b> <u>T Lekakou</u> , University of Surrey, UK	<b>(invited) Optical selective injection of peptide-modified nanosensor into a specific cell (8781)</b> <u>T Masuda</u> , Nagoya University, Japan	<b>(invited) Hybrid spintronic/straintronics : a super energy efficient computing scheme based on interacting multiferroic nanomagnets (7691)</b> <u>J Atulasimha</u> , Virginia Commonwealth, USA University	
12.00	<b>Preparation and characterization of polymeric micelles for disinfectant coating on catheters (7578)</b> <u>N Nasongkla</u> , Mahidol University, Thailand	<b>Linearly polarized light emission from organic light emitting diode with metallic nanograting structure (7644)</b> <u>L Ming Yi</u> , National Taiwan University, Taiwan	<b>(invited) Graphene nanopores for nucleic acid analysis (9256)</b> <u>R Bashir</u> , University of Illinois at Urbana-Champaign, USA	<b>Energy scavenging microdevices enabled by carbon nanotube film (7434)</b> <u>L Que</u> , Louisiana Tech University, USA	<b>Evaluation of thermal conductivity of single carbon nanotube in liquid using photofabricated fluorescent micropillars (8756)</b> <u>H Maruyama</u> , Nagoya University, Japan	<b>Compact modeling of spin-transport parameters in semiconducting channels in non-local spin-torque devices (7433)</b> <u>S Rakheja</u> , Georgia Institute of Technology, USA	<b>Exhibitor presentation: Nanoscribe</b> <u>W Cui</u>
12.20 12.30	<b>Capping ligand effect on charge transfer mechanism of hybrid organic (P<sub>3</sub>HT): inorganic (PbSe) nanocomposites (8012)</b> <u>A Mehta</u> , National Physical Laboratory, India	<b>Resistive switching in copper oxide nanowire-based memristors (8777)</b> <u>Z Fan</u> , Michigan State University, USA	<b>Carbon nanotube network based sensors (7599)</b> <u>V Scardaci</u> , Hewlett-Packard, Ireland	<b>Damage tolerant bio-sensitized solar cell (7874)</b> <u>M Griep</u> , US Army Research Laboratory, USA	<b>Manufacturing of superhydrophobic surfaces combining nanosphere lithography with replication techniques (7721)</b> <u>N Blondiaux</u> , Swiss Center for Eletronics and Microtechnology, Switzerland	<b>Modeling of coupled spin torque oscillators for applications in associative memories (8785)</b> <u>W Porod</u> , University of Notre Dame, USA	<b>Exhibitor presentation: Analytik LTD</b> <u>H Vegad</u>

Hall 1	Hall 6	Hall 7a	Hall 7b	Hall 8a	Hall 8b	Hall 11b
12.40	<b>Scalable and uniform patterning of transparent conductive electrodes of silver nanowire on flexible substrates using selective dewetting method (7809)</b> <u>M Yuen</u> , Hong Kong University of Science and Technology, Hong Kong	<b>Non-enzymatic glucose biosensor based on low density CNT forest (7582)</b> <u>Z Zhu</u> , Shanghai Second Polytechnic University, China		<b>Multi-slicing of C. elegans tissue using micro-nanocutting probe based on nanomanipulation (7900)</b> <u>M Nakajima</u> , Nagoya University, Japan		
13.00	<b>Hall 3</b> Lunch, exhibition and poster display					
	<b>TuP1T4: Nanomaterials/ nanoparticles, characterization and application</b> Chair: Q Guo, University of Birmingham, UK, and R Palmer, University of Birmingham, UK	<b>TuP1T1: Scanning probe nanofabrication</b> Chair: T Drysdale, University of Glasgow, UK, and G Kreindl, EVGroup	<b>TuP1T6: Nano/bio medicine I: Nanodevices for diagnostics and remediation</b> Chair: M Malboubi, University College London, UK, and C Ruggiero, District University of Genova, Italy	<b>TuP1T3: Nanosensors and actuators II: Nanoparticle and nanowire based sensors</b> Chair: G Koley, University of South Carolina, USA, and J T-H Wang, John Hopkins University, USA	<b>TuP1T5: Nanomaterials for next generation photovoltaics</b> Chair: L Que, Louisiana Tech University, USA, and A Sergeev, SUNY at Buffalo, USA	<b>TuP1T7: Nanorobotics and manufacturing II</b> Chair: T Masuda, Nagoya University, Japan, and T Fukuda, Nagoya University, Japan
14.00	<b>(invited) Phase change materials: density functional / molecular dynamics simulations (7668)</b> <u>J Akola</u> , Tampere University of Technology, Finland	<b>Atomic force microscopy-based repaetable surface nanomachining for nanochannels on bare silicon substrates (7393)</b> <u>U Wejinya</u> , University of Arkansas, USA	<b>Nano-, nanobio- and nanobiomedical-technologies: enabling sensing, communication and processing paradigms (8927)</b> <u>S Lyshevski</u> , Rochester Institute of Technology, USA	<b>(invited) Electronic noses for VOCs detection based on the nanoparticles hybridized graphene composites (7895)</b> <u>T T Tung</u> , University of Sound Brittany, France	<b>(invited) Carbon nanostructures for energy storage (8938)</b> <u>S Arepalli</u> , Sungkyunkwan University, South Korea	<b>(invited) Nano-robot enabled characterizations of local electrical properties for nano-structures (8644)</b> <u>W C Lai</u> , Michigan State University, USA
						<b>TuP1T2: Nanomagnetics</b> Chair: W Porod, University of Notre Dame, USA, and C Anthony, University of Birmingham, UK

	<i>Hall 1</i>	<i>Hall 6</i>	<i>Hall 7a</i>	<i>Hall 7b</i>	<i>Hall 8a</i>	<i>Hall 8b</i>	<i>Hall 11b</i>
14.30	<b>Biological responses of MC<sub>3</sub>T<sub>3</sub>-E<sub>1</sub> cultured on Poly(<math>\epsilon</math>-caprolactone) sponge scaffolds filled with crude bone protein-loaded hydroxyapatite nanoparticles (6595)</b> <u>P K-hasuwan</u> , Chulalongkorn University, Thailand	<b>Laser-assisted nanofabrication in the scanning electron microscope (8786)</b> <u>G Magel</u> , Omniprobe, Inc., USA	<b>Fluorescence anisotropy of gold nanoclusters (7973)</b> <u>Y Chen</u> , Strathclyde University, UK	<b>Particle size-dependent electrical resistances of WO<sub>3</sub> nanofibers (7771)</b> <u>J Muangban</u> , Khon Kaen University, Thailand	<b>MoS<sub>2</sub> / TiO<sub>2</sub> nanoparticle composite bulk heterojunction solar cell (8040)</b> <u>B Yu</u> , State University of New York, USA	<b>Nano needle with buffering beam for single cell stiffness measurement by nanorobotic manipulators inside ESEM (7802)</b> <u>M Nakajima</u> , Nagoya University, Japan	<b>A novel design concept for high density hybrid CMOS-nanomagnetic circuits (8698)</b> <u>J Das</u> , University of South Florida, USA
14.50	<b>Toward a probe-based method for determining exfoliation energies of lamellar materials (7682)</b> <u>R Cannara</u> , National Institute of Standards and Technology, USA	<b>New simple fabrication method of matrix lens arrays using resist patterns directly as moulds (7567)</b> <u>T Horiuchi</u> , Tokyo Denki University, Japan	<b>Quantum dot electrophoretic mobility shift assay and its application to the measurement of exonuclease activity (7685)</b> <u>T-H Wang</u> , Johns Hopkins School of Medicine, USA	<b>Integration of silica nanowires to carbon MEMS for glucose sensors (7816)</b> <u>Z Tang</u> , Huazhong University of Science and Technology, China	<b>Characterization of large area Cu(In,Ga)Se<sub>2</sub> nanotip arrays via photoluminescence (7961)</b> <u>Y-K Liao</u> , National Chiao-Tung University, Taiwan	<b>Assembly and evaluation of MWCNTs probe thermal sensor by nanorobotic manipulation (7915)</b> <u>Z Yang</u> , Nagoya University, Japan	<b>A synthesis and simulation tool for NML circuits (7779)</b> <u>M Vacca</u> , Politecnico di Torino, Italy
15.10	<b>Two-photon luminescence and energy transfer of gold nanorods for cell imaging (7834)</b> <u>Y Chen</u> , Strathclyde University, UK	<b>Direct-write conductive fibres for soft electronics (8747)</b> <u>Y Y S Huang</u> , University of Cambridge, UK	<b>Quantum dot FRET linker probes for highly sensitive DNA methylation detection (7848)</b> <u>B Keeley</u> , Johns Hopkins University, USA	<b>Tungsten oxide nanoneedles for benzene detection (8678)</b> <u>C Blackman</u> , University College London, UK	<b>Co-optimizing plasmonic and solar cell structures (8010)</b> <u>S Tembhurne</u> , IIT Bombay, India	<b>Geometry and surface morphology effects for catalytic nano-mobile robot (7891)</b> <u>Z Yang</u> , Nagoya University, Japan	<b>Addressing the layout constraint problem in cascading logic gates in nanomagnetic logic (8693)</b> <u>J Das</u> , University of South Florida, USA

	<i>Hall 1</i>	<i>Hall 6</i>	<i>Hall 7a</i>	<i>Hall 7b</i>	<i>Hall 8a</i>	<i>Hall 8b</i>	<i>Hall 11b</i>
15.30	<b>Substrate effect on graphene-based interconnects (8041)</b> <u>B Yu</u> , State University of New York, USA	<b>Atomic scale understanding of linear and perpendicular junction of molecular lines on Si(100)-H surface (8738)</b> <u>M Z Hossain</u> , Gunma University, Japan	<b>The viability of U-2 OS cells on zinc oxide nanowires observed via MTS assay in vitro (7861)</b> <u>R Brown</u> , Swansea University, UK	<b>On-chip synthesis of CuO nanowires for direct gas sensor integration (7687)</b> <u>S Steinhauer</u> , AIT Austrian Institute of Technology GmbH, Austria	<b>Nanoscale engineering of photoelectron processes by charging of quantum dots (7997)</b> <u>A Sergeev</u> , SUNY at Buffalo, USA		
15.50	<i>Hall 3</i> Refreshment break, exhibition and poster display						
	<i>Hall 1</i>	<i>Hall 6</i>	<i>Hall 7a</i>	<i>Hall 7b</i>	<i>Hall 8a</i>	<i>Hall 8b</i>	
	<b>TuP2T3: Nanomaterials/ nanoparticles, characterization and application</b> Chair: K He, University of Illinois, USA	<b>TuP2T2: Nanowires: materials, devices &amp; applications</b> Chair: D Ferry, Arizona State University, USA, and S Goodnick, Arizona State University, USA	<b>TuP2T1: Nanofabrication: nanoscale replication</b> Chair: J Gobrecht, Paul Scherrer Institute, Switzerland, and A Robinson, University of Birmingham, UK	<b>TuP2T6: Nano/bio medicine II: Nanotherapies</b> Chair: B Keeley, Johns Hopkins University, USA, and M Malboubi, London Centre for Nanotechnology, UK	<b>TuP2T4: Nanosensors and actuators III</b> Chair: M Spencer, Cornell University, USA, and T T Tung, University of South Brittany, France	<b>TuP2T5: Nanofluidics I</b> Chair: Y Liu, West Virginia University, USA, and S-W Chau, National Taiwan University of Science and Technology, Taiwan	
16.30	<b>(invited) Measuring thermal conductivity of nanocrystalline diamond film with a scanning thermal microscope (8428)</b> <u>J Weaver</u> , University of Glasgow, UK	<b>(invited) Manipulating connectivity in random nanowire networks to create evolutionary materials and devices (8915)</b> <u>J Boland</u> , Trinity College Dublin, Ireland	<b>(invited) High throughput parallel micro and nano-scale replication (7596)</b> <u>G Kreindl</u> , EVGroup, Austria	<b>Improved therapeutic efficacy via magnetite nanoconjugates derived synchronization of hyperthermochemotherapy (7932)</b> <u>D-B Shieh</u> , National Cheng Kung University, Taiwan	<b>(invited) Development of ferromagnetic shape memory nanoactuators (8107)</b> <u>M Schmitt</u> , Karlsruhe Institute of Technology, Germany	<b>(invited) The dynamic behaviour of nanodroplet formation on micropillar surface during a dewetting process (7904)</b> <u>S-W Chau</u> , National Taiwan University of Science and Technology, Taiwan	
16.50	<b>Effect of process parameters on the effective D.C. conductivity of GNP thick films (7988)</b> <u>G De Bellis</u> , Sapienza University of Rome, Italy	<b>Investigation on hot carrier effect in n-type short-channel junctionless nanowire transistors (7366)</b> <u>C-H Park</u> , Pohang University of Science and Technology, South Korea	<b>Development of low-cost and large-area nanopatterned vitreous carbon stamp for glass nanoreplication (8007)</b> <u>J Ju</u> , Chung-Ang University, Korea	<b>Biomimetic structures: incorporation of active biomolecules in polyelectrolyte shells (8657)</b> <u>C Ruggiero</u> , District University of Genova, Italy	<b>Spectral detection of regenerated silk fibroin on a two dimensional metallic photonic crystal based SPR biosensor (7990)</b> <u>Z Xu</u> , Fudan University, China	<b>Electrokinetic nanofluid slip flow in rectangular and circular microchannels regarding constant heat flux (7105)</b> <u>J Avsec</u> , University of Maribor, Slovenia	

	<i>Hall 1</i>	<i>Hall 6</i>	<i>Hall 7a</i>	<i>Hall 7b</i>	<i>Hall 8a</i>	<i>Hall 8b</i>
17.10	<b>Resistive switching characteristics of patterned Cr/ZnO/Cr thin film structure (8051)</b> <u>E Yoo</u> , Myoung ji University, South Korea	<b>Investigation in to the initial growth parameters of hydrothermal zinc oxide nanowires (7693)</b> <u>C Barnett</u> , Swansea University, UK	<b>Fluidic simulation and realization for inkjet nano SFIL (8635)</b> <u>C-H Liu</u> , Tsing hua University, Taiwan	<b>Thermosensitive gold-liposome hybrid nanostructures for photothermal therapy of cancer (7875)</b> <u>A K Rengan</u> , IIT Bombay, India	<b>Near-field microwave excitation and detection of NEMS resonators (7498)</b> <u>L Hao</u> , National Physical Laboratory, UK	<b>Nanorobotic mass transport (8779)</b> <u>Z Fan</u> , Michigan State University, USA
17.30	<b>Microfluidic channel integrated solution state diode using semiconductor polymer nanorods with nanogap electrodes (7980)</b> <u>B G Sonmez</u> , Bogazici University, Turkey	<b>Ge nanowire transistors with high-quality interfaces by atomic-scale thermal annealing (7758)</b> <u>J Tang</u> , University of California, USA	<b>Controlled fabrication of SiNWs via nanosphere lithograph and MACE (7867)</b> <u>G Liao</u> , Huazhong University Science & Technology, China	<b>Core/surface modified nanomedicines for controlled release of drug (7886)</b> <u>R Srivastava</u> , IIT Bombay, India	<b>Lithographically patterned anodic aluminum oxide (AAO) nanostructures for fluorescence enhancement (7564)</b> <u>L Que</u> , Louisiana Tech University, USA	<b>Leakage current in a Si based nanopore structure and its influence on noise characteristics (8594)</b> <u>M-H Lee</u> , Seoul National University, South Korea
17.50	<b>Polarized emission from InGaN light-emitting diode with self-assembled Opal coating (8610)</b> <u>H W Choi</u> , The University of Hong Kong, Hong Kong	<b>Sub-10V 4-Bit/Cell schottky barrier nanowire nonvolatile memory (7905)</b> <u>W Chang</u> , National Tsing Hua University, Taiwan	<b>Fabrications of highly attractive nanoscale nickel structures and their catalytic applications (8593)</b> <u>N Hussain</u> , University of Sind, Pakistan	<b>Synergistic effect to kill cancer cells by gold nanorod-aluminum phthalocyanine conjugates (7269)</b> <u>J-Y Chen</u> , Fudan University, China	<b>High gain current readout method for nano infrared sensors (8648)</b> <u>W C Lai</u> , Michigan State University, USA	<b>Molecular dynamics simulations of ionic transport through voltage-controlled carbon nanotubes (7984)</b> <u>T Beu</u> , University "Babeş-Bolyai", Romania
18.10		<b>Coulomb blockade in granular gold nanowire material (7916)</b> <u>H Guerin</u> , EPFL - Nanolab, Switzerland		<b>Dielectrophoresis of poly AT and poly GC DNA Nano-Manipulation (7575)</b> <u>A Mohamad</u> , University of Kuala Lumpur, Malaysia	<b>Meeting the challenges of oilfield exploration using intelligent micro and nano-scale sensors (8821)</b> <u>D Chapman</u> , Advanced Energy Consortium at UT, USA	<b>Dynamic control of cell migration using optical tweezers and microfluidic channel (7781)</b> <u>G Xue</u> , City University of Hong Kong, Hong Kong
18.30	<i>Hall 3</i> Poster session and exhibition					
19.00	<i>IEEE registration desk</i> Walking tour of Birmingham (pre-booked)					
19.30	End of session					

## Wednesday 22 August

08.00 *Hall 3 foyer*  
Registration

09.00 *Hall 1*  
Chair: R Palmer, University of Birmingham, UK and N Xi, Michigan State University, USA  
**(plenary) Nanoplatfoms for molecular plasmonics (9382)**  
R Van Duyne, Northwestern University, USA

09.45 **(plenary) Silicon-based nanofabrication: progress, challenges and technology spin-offs (9383)**  
J Lyding, University of Illinois, USA

10.30 *Hall 3*  
Refreshment break, exhibition and poster display

	<i>Hall 1</i>	<i>Hall 6</i>	<i>Hall 7a</i>	<i>Hall 7b</i>	<i>Hall 8a</i>	<i>Hall 8b</i>	<i>Hall 11b</i>
	<b>WeA2T2: Carbon nanotube device applications</b> Chair: J Boland, Trinity College Dublin, Ireland, and C Sun, Northwestern University, USA	<b>WeA2T1: Nanoscale pattern transfer</b> Chair: R Lawes, Imperial College London, UK, and K Curtis, University of Cambridge, UK	<b>WeA2T6: Nanophotonics applications</b> Chairs: A C Ferrari, University of Cambridge, UK, and S Zhang, University of Birmingham, UK	<b>WeA2T4: Nanowires in nanopackaging</b> Chairs: A Novikov, University of Rostock, Germany and A Moscicki, Amepox Microelectronics Ltd, Poland	<b>WeA2T5: Nanometrology, characterization</b> Chairs: N Shamsudhin, ETH Zurich, Switzerland and J Chung, Korea University, South Korea	<b>WeA2T3: Quantum computing</b> Chair: S Lyshevski, Rochester Institute of Technology, USA, and H-G Boyen, Ulm University, Belgium	
11.00	<b>(invited) Carbon nanotube FET process variability and noise model for radiofrequency investigations (7716)</b> <u>G M Landauer</u> , Universitat Politècnica de Catalunya, Spain	<b>(invited) 3D nanofabrication of components by corner lithography: self aligned sub 50-nm apertures (8765)</b> <u>N Burouni</u> , Twente University, The Netherlands	<b>(invited) Cathodo- and electro-luminescences image mapping technique to study traps in GaN-based LEDs (7577)</b> <u>E Park</u> , Seoul National University, South Korea	<b>(invited) Design, simulation and modelling for nanopackaging applications: Current capabilities and future requirements (9367)</b> <u>C Bailey</u> , University of Greenwich, UK	<b>A calibration algorithm for nearfield scanning microwave microscopes (8543)</b> <u>J Hoffmann</u> , National Metrology Institute of Switzerland, Switzerland	<b>(invited) Integrated quantum photonics (9378)</b> <u>J O'Brien</u> , University of Bristol, UK	

	Hall 1	Hall 6	Hall 7a	Hall 7b	Hall 8a	Hall 8b	Hall 11b
11.30	<b>Contact resistance of low-temperature carbon nanotube vertical interconnects (7784)</b> <u>S Vollebregt</u> , Delft University of Technology, The Netherlands	<b>Sub-15 nm nano-pattern generation by spacer width control for high density precisely positioned self-assembled device nanomanufacturing (7938)</b> <u>J Mink</u> , King Abdullah University of Science and Technology, Saudi Arabia	<b>Analysis of Urea in human serum using oblique angle deposited Ag nanorods surface enhanced raman scattering substrate (7772)</b> <u>Y-a Han</u> , Chung-Ang University, Korea	<b>Copper nanowire based mechanical and electrical bonding technology (8684)</b> <u>Y Ju</u> , Nagoya University, Japan	<b>Bio-inspired scanning for video-imaging using an atomic force microscope (8637)</b> <u>N Xi</u> , Michigan State University, USA	<b>A study of optimal 4-bit reversible circuit synthesis from mixed-polarity toffoli gates (8745)</b> <u>M Szyprowski</u> , Warsaw University of Technology, Poland	
11.50 12.00	<b>Fabrication and characterization of carbon nanotubes as r.f interconnects (7837)</b> <u>L Hao</u> , National Physical Laboratory, UK	<b>Silicon nanowire devices with widths below 5 nm (7822)</b> <u>D Paul</u> , University of Glasgow, UK	<b>Quantum molecular sensing, communication and processing by photons (8602)</b> <u>S Lyshevski</u> , Rochester Institute of Technology, USA	<b>Fabrication individually addressable ultra long metal nanowire bumps and application as interconnects (7684)</b> <u>J Xu</u> , Tyndall National Institute, Ireland	<b>Morphological characterization of sub-micron PDMS bowl structures (7807)</b> <u>A Mohammadkhani</u> , University of Birmingham, UK	<b>Hardware, software and algorithmic solutions for quantum data processing (8603)</b> <u>S Lyshevski</u> , Rochester Institute of Technology, USA	<b>Exhibitor presentation: Technoog</b> <u>K Alfoldi</u>
12.10	<b>Ballasted carbon nanotube array based X-ray tube (7332)</b> <u>J Yeow</u> , University of Waterloo, Canada	<b>High-density and sub-20-nm GaAs nanodisk array fabricated using neutral beam etching process for high performance QDs devices (7751)</b> <u>Y Tamura</u> , Tohoku University, Japan	<b>A design of nano-plasmonics based high sensitive sensor (7880)</b> <u>Y-W Choi</u> , Chung-Ang University, South Korea	<b>Silver nanowire antenna printed on polymer and paper substrates (8830)</b> <u>K Suganuma</u> , Osaka University, Japan	<b>Metrology for nanosystems and nanoelectronics reliability assessments (6584)</b> <u>Y Obeng</u> , National Institute of Standards and Technology	<b>An approach to synthesis of reversible circuits for partially specified functions (8570)</b> <u>P Kerntopf</u> , Portland State University, USA	

	<i>Hall 1</i>	<i>Hall 6</i>	<i>Hall 7a</i>	<i>Hall 7b</i>	<i>Hall 8a</i>	<i>Hall 8b</i>	<i>Hall 11b</i>
12.30	<b>Excellent endurance of MWCNT anode in micro-sized microbial fuel cell (7941)</b> <u>J Mink</u> , King Abdullah University of Science and Technology, Saudi Arabia	<b>Fabrication of antireflective silicon nanowire arrays (7864)</b> <u>G Liao</u> , Huazhong University Science and Technology, China	<b>Design and simulation of a dielectric planar antenna for semiconductor quantum dot single photon sources (8050)</b> <u>Y Ma</u> , Heriot-Watt University, UK	<b>Conductive, transparent, flexible electrode from silver nanowire thin film with double layer structure (7811)</b> <u>M Yuen</u> , Hong Kong University of Science and Technology, Hong Kong	<b>Spectroscopic characteristics and cellular compatibility of biomolecule-wrapped carbon nanotubes (8772)</b> <u>C Bertulli</u> , University of Cambridge, UK		<b>Exhibitor presentation: E M Resist</b> <u>S Lewis</u>
12.50	<i>Hall 3</i> Lunch, exhibition and poster display						
	<i>Hall 1</i>	<i>Hall 6</i>	<i>Hall 7a</i>	<i>Hall 7b</i>	<i>Hall 8a</i>	<i>Hall 8b</i>	<i>Hall 11b</i>
	<b>WeP1T3: Nanomaterials/ nanoparticles, characterization and application</b> Chairs: S Mannan, Kings College London, UK, and Y Chen, Strathclyde University, UK	<b>WeP1T1: Nanoscale engineering</b> Chair: N Burouni, Twente University, The Netherlands, and G Liao, Huazhong University of Science and Technology, China	<b>WeP1T4: Modeling of nanoscale devices</b> Chairs: J Akola, Tampere University of Technology, Finland, and G Tement, University of Glasgow, UK	<i>Sponsored by Oxford Instruments</i> <b>WeP1T7: Nanoelectronics: devices - SETs, RTDs, QDs, Molecular: high frequency and optical nanodevices</b> Chair: W Wulfhekel, Karlsruhe Institute of Technology, Germany, and A Armstrong, Queen's University Belfast, UK	<b>WeP1T5: Nanopackaging interconnections</b> Chairs: C Bailey, University of Greenwich, UK and Y Ju, Nagoya University, Japan	<b>WeP1T2: Nanometrology, characterization II</b> Chairs: D Chetwynd, University of Warwick, UK, and Z Jiang, Xi'an Jiaotong University	<i>Sponsored by Oxford Instruments</i> <b>WeP1T6: Nanoelectronics: nanocircuits, architectures</b> Chairs: V Beiu, United Arab Emirates University, United Arab Emirates and J Das, University of South Florida, USA
14.00	<b>(invited) Scanning tunneling microscopy characterization of graphene-coated few-layered water on Mica (7735)</b> <u>K He</u> , University of Illinois, USA	<b>(invited) Reduced tunnel-barrier height in Sub-10 nm Au nanoelectrodes (8554)</b> <u>K Curtis</u> , University of Cambridge, UK	<b>(invited) Band-offset driven efficiency of the doping of SiGe core-shell nanowires (8547)</b> <u>R Rurali</u> , Institut de Ciència de Materials de Barcelona, Spain	<b>(invited) Antenna-coupled thermocouples for infrared detection (8494)</b> <u>W Porod</u> , University of Notre Dame, USA	<b>(invited) Interconnection process by inkjet printing method (8476)</b> <u>A Moscicki</u> , Amepox Microelectronics Ltd, Poland	<b>Measurement of thermal contact resistance between CVD-grown graphene and SiO<sub>2</sub> by null point scanning thermal microscopy (8541)</b> <u>J Chung</u> , Korea University, South Korea	<b>(invited) Programmable quantum-dot and memristor based architecture for image processing (8613)</b> <u>P Mazumder</u> , University of Michigan, USA

	<i>Hall 1</i>	<i>Hall 6</i>	<i>Hall 7a</i>	<i>Hall 7b</i>	<i>Hall 8a</i>	<i>Hall 8b</i>	<i>Hall 11b</i>
14.30	<b>Synthesis of graphene and its application as wide-band saurable absorbers (7792)</b> <u>M Jiang</u> , Northwest University, USA	<b>Microfabrication processes of defectless TiO<sub>2</sub> waveguides for insertion of a microfluidic channel (8646)</b> <u>M Furuhashi</u> , Osaka University, Japan	<b>Si nanowire memory (7969)</b> <u>A Nayfeh</u> , Masdar Institute, United Arab Emirates	<b>AC response of asymmetric double-semiconductor tunnel barriers (7843)</b> <u>P Schulz</u> , Universidade Estadual de Campinas, Brazil	<b>Experimental method for low-temperature sintering of ink-jet printed nano-Ag microstructures using electrical excitation (8556)</b> <u>J Felba</u> , Wroclaw University of Technology, Poland	<b>Calibration measurments down to 50nm with photon correlation Nano LDA (8812)</b> <u>L Vamos</u> , MTA Wigner RCP, SZFKI	<b>On simulation of multiplexed architecture for fault-tolerant nanoelectronic systems (7853)</b> <u>K Gucwa</u> , Silesian University of Technology, Poland
14.50	<b>Towards nanostructured graphene through the deposition of size-selected clusters (8778)</b> <u>S Plant</u> , University of Birmingham, UK	<b>A mechanical route to carbon nanoscrolls (8666)</b> <u>B Jayasena</u> , Nanyang Technological University, Singapore	<b>Simulating InP-based composite channel p-HEMTs with ultrashort gates for THz applications (8791)</b> <u>S Goodnick</u> , Arizona State University, USA	<b>Field emission from a nanoporous semiconductor (7677)</b> <u>F Sharifi</u> , National Institute of Standards and Technology, UK	<b>Low-temperature assembling process with nanoscaled solder layers (7673)</b> <u>A Novikov</u> , University of Rostock, Germany	<b>Micro-cantilever design and modeling framework for quantitative multi-frequency AFM (7951)</b> <u>N Shamsudhin</u> , ETH Zurich, Switzerland	<b>On-chip variation sensor for systematic variation estimation in nanoscale fabrics (8775)</b> <u>P Narayanan</u> , University of Massachusetts Amherst, USA
15.10	<b>Manifold sensitivity improvement of hydrocarbon odour sensors (7992)</b> <u>H Alqahtani</u> , University of Sheffield, UK	<b>Fluorene (C13H10)-type thin films synthesized by mixture of biphenyl and ethylene plasma by single RF (7810)</b> <u>D Mansuroglu</u> , Middle East Technical University, Turkey	<b>GaN HEMTs reliability – the role of shielding (8744)</b> <u>S Goodnick</u> , Arizona State University, USA	<b>InGaN-GaN Multi quantum well (MQW) photodetector With nano-pattereded sapphire substrate to reduce the dark current (7972)</b> <u>P-H Chen</u> , National Taiwan University, Taiwan	<b>A temperature-dependent circuit model for carbon-based on-chip global interconnects (8015)</b> <u>A Chiariello</u> , University of Cassino and Southern Lazio, Italy	<b>Degradation Stochastic Resonance (DSR) in AD-AVG qrchitctures (7737)</b> <u>N Aymerich</u> , Universitat Politècnica de Catalunya, Spain	<b>Squarers in QCA nanotechnology (7221)</b> <u>O Giannou</u> , University of Patras, Greece

	<i>Hall 1</i>	<i>Hall 6</i>	<i>Hall 7a</i>	<i>Hall 7b</i>	<i>Hall 8a</i>	<i>Hall 8b</i>	<i>Hall 11b</i>
15.30	<b>Limitations of nanoparticle enhanced solder pastes for electronics assembly (7045)</b> <u>S Mannan</u> , King's College London, UK	<b>Fabrication of nano-structured plasmonic composite by two-step ion-exchange process (8766)</b> <u>C-Y Tai</u> , National Central University, Taiwan	<b>Estimate of boundary surface influence on peer-to-peer channel between nano-devices (7855)</b> <u>D Penkin</u> , Delft University of Technology, The Netherlands	<b>Ge/Si quantum dot photodetectors For midinfrared applications (8481)</b> <u>A Dvurechenskii</u> , Russian Academy of Science, Russia	<b>Integration of interlayer microfluidic cooling with high aspect ratio through silicon vias (8817)</b> <u>M S Bakir</u> , Georgia Institute of Technology, USA		<b>Next generation memory yield enhancement with memristor built-in self-repair circuit (8631)</b> <u>I Ebong</u> , University of Michigan, USA
15.50	<i>Hall 3</i> Refreshment break, exhibition and poster display						
	<i>Hall 1</i>	<i>Hall 6</i>	<i>Hall 7a</i>	<i>Hall 7b</i>	<i>Hall 8a</i>	<i>Hall 8b</i>	<i>Hall 11b</i>
	<b>WeP2T3: Nanomaterials/ nanoparticles, characterization and application</b> Chairs: S Goodnick, Arizona State University, USA and K Curtis, University of Cambridge, UK	<b>WeP2T2: Graphene device applications</b> Chair: A Kaul, National Science Foundation, USA, and M Jiang, Northwest University, USA	<b>WeP2T5: Nanomaterials: Nanomaterial/ nanoparticles synthesis I: nanotubes and nanorods</b> Chairs: J Lyding, University of Illinois, USA, and S Plant, University of Birmingham, UK	<b>WeP2T4: Modeling of nanostructures for nanoelectronics</b> Chair: S Arepalli, Sungkyunkwan University, South Korea and R Rurali, ICMA-B-CSIC	<b>WeP2T7: Modeling of Si Field Effect Nanodevices</b> Chairs: D Paul, University of Glasgow, UK, and F Sharifi, National Institute of Standards and Technology, UK	<i>Sponsored by Oxford Instruments</i> <b>WeP2T6: Nanoelectronics: nanocircuits, architectures</b> Chairs: P Mazumder, University of Michigan, USA and I Utke, Swiss Federal Laboratories for Materials Science and Technology, Switzerland	<b>WeP2T1: Addressing challenges in nano-education</b> Chair: W Trybula, Trybula Foundation, Inc., USA, and Texas State University, USA. D Chapman, Advanced Energy Consortium, University of Texas, UK
16.30	<b>(invited) Surface plasmon resonance for digital imaging (7220)</b> <u>T Drysdale</u> , University of Glasgow, UK	<b>(invited) Large area transparent conducting electrode with a nanostructured coating (8749)</b> <u>Y Y S Huang</u> , University of Cambridge, UK	<b>Spontaneous scrolling of Al<sub>2</sub>Si<sub>2</sub>O<sub>5</sub>(OH)<sub>4</sub> Halloysite nanotubes in the presence of GeO<sub>2</sub> (7264)</b> <u>R White</u> , University of Southampton, UK	<b>(invited) Metal/molecule multilayers – from preparational aspects to interface effects (9379)</b> <u>H-G Boyen</u> , Hasselt University, Belgium	<b>(invited) Double-gate suspended silicon nanowire transistors with tunable threshold voltage for chemical/biological sensing applications (8822)</b> <u>M A Ghiass</u> , University of Southampton, UK	<b>(invited) Synthesis of reversible circuits: a view on the state-of-the-art (8743)</b> <u>P Kerntopf</u> , University of Lodz, Poland	<b>(invited) Nanotechnology: a platform for educational change (8042)</b> <u>D Newberry</u> , Dakota County Technical College, USA

	<i>Hall 1</i>	<i>Hall 6</i>	<i>Hall 7a</i>	<i>Hall 7b</i>	<i>Hall 8a</i>	<i>Hall 8b</i>	<i>Hall 11b</i>
16.50	<p><b>Nanocrystalline ZnO obtained from pyrolytic decomposition of layered basic zinc acetate (8024)</b>  <u>A Tarat</u>, Swansea University, UK</p>	<p><b>Highly bendable high-mobility graphene field effect transistors with multi-finger embedded gates on flexible substrates (8809)</b>  <u>D Akinwande</u>, The University of Texas at Austin, USA</p>	<p><b>Facile synthesis of WO<sub>3</sub>-MWCNT hybrid materials and their characterization (7542)</b>  <u>T Charinpanitkul</u>, Chulalongkorn University, Thailand</p>	<p><b>In silico design control of the trade-off balance in robustness and fragility of logical circuits using DNA nanostructures (7632)</b>  <u>M Hirabayashi</u>, National Institute of Information and Communications Technology, Japan</p>	<p><b>A simple analytical study of a low sub-threshold swing ultra thin body Silicon on Insulator Tunneling Transistor for Low Power Application (8036)</b>  <u>H Rahaman</u>, Bengal Engineering and Science University, India</p>	<p><b>NEM relay based memory architectures for low power design (8031)</b>  <u>R Venkatasubramanian</u>, University of Texas at Dallas, USA, and Texas Instruments Inc, USA</p>	<p><b>Development of integrated nanoscience concentration program in a college of science, mathematics, and technology (8598)</b>  <u>S Lyshevski</u>, Rochester Institute of Technology, USA</p>
17.10	<p><b>Characterization of electrophoretically deposited dielectric thin films for electronics applications (8806)</b>  <u>M Sullivan</u>, Tyco Electronics, UK</p>	<p><b>Electrostatic force spectroscopy and scanning gate microscopy on epitaxial graphene Hall sensors (7919)</b>  <u>V Panchal</u>, National Physical Laboratory, UK</p>	<p><b>Local control of ZnO nanorods growing on microstructures with an external electric-field assistance (7791)</b>  <u>R Zhu</u>, Tsinghua University, China</p>	<p><b>Modelling and design of polygon-shaped kinesin substrates for molecular communication (7859)</b>  <u>A W Eckford</u>, York University, Canada</p>	<p><b>Low power nanoscale RF/Analog MOSFETs (7744)</b>  <u>A Armstrong</u>, Queen's University Belfast, UK</p>	<p><b>Towards ultra low power/voltage using unconventionally sized arrays of transistors (7985)</b>  <u>V Beiu</u>, United Arab Emirates University, Saudi Arabia</p>	<p><b>Current status of nanotechnology in Arab gulf states (6947)</b>  <u>B Alfeeli</u>, Kuwait Institute for Scientific Research, Kuwait</p>
17.30	<p><b>Micro/nano-size diamond particles on Ni-column fabricated by micro fabrication in grinding application (7827)</b>  <u>C-J Shih</u>, National Taiwan University, Taiwan</p>	<p><b>Sensing with liquid-gated graphene field-effect transistors (7073)</b>  <u>W Fu</u>, Basel University, Switzerland</p>	<p><b>Self assembled bimetallic Ag/Cu-Si nanowires on Si(001) synthesized with E-beam evaporation (8533)</b>  <u>C Lilley</u>, University of Illinois at Chicago, USA</p>	<p><b>ZnO based charge trapping memory with embedded nanoparticles (7888)</b>  <u>A Nayfeh</u>, Masdar Institute, United Arab Emirates</p>	<p><b>Sensitivity analysis of steep subthreshold slope (S-slope) in junctionless nanotransistors (7878)</b>  <u>A Armstrong</u>, Queen's University Belfast, UK</p>	<p><b>Logical effort of CNFET-based circuits in the presence of metallic tubes (8643)</b>  <u>M Ali</u>, Portland State University, USA</p>	<p><b>A modularized approach to nanotechnology education: opportunities, challenges and requirements (8626)</b>  <u>D Newberry</u>, Dakota County Technical College, USA</p>

	<i>Hall 1</i>	<i>Hall 6</i>	<i>Hall 7a</i>	<i>Hall 7b</i>	<i>Hall 8a</i>	<i>Hall 8b</i>	<i>Hall 11b</i>
17.50	<b>Study of controlled quantum dot formation on focused ion beam patterned GaAs substrates (8576)</b> <u>H Zhang</u> , University of Sheffield, UK	<b>Nanosensors based on graphene inter-layer electronic properties (7869)</b> <u>F Rao</u> , Michigan State University, USA	<b>One-step synthesis and characterization of highly-ordered titanium dioxide nanotubes (7839)</b> <u>J Martin</u> , US Army Research Laboratory, USA	<b>The significant effect of the size of a nano-metal particle on the interface with a semiconductor substrate (8016)</b> <u>M Rezeg</u> , Khalifa University of Science Technology and Research, United Arab Emirates	<b>Conformation vs voltage gating in a molecular transistor: A first-principles quantum chemical study (8048)</b> <u>S Mukhopadhyay</u> , Michigan Technological University, USA	<b>Enhancing metallicity in zigzag graphene nanoribbons with adsorbed/substitutionally doped copper atoms (7783)</b> <u>P Srivastava</u> , Indian Institute of Information Technology and Management, India	<b>Enabling STEM education and engineering curricula by MEMS and nanotechnology courses (8597)</b> <u>S Lyshevski</u> , Rochester Institute of Technology, USA
18.10						<b>Design of nanoelectronic ICs: noise-tolerant logic gates based on loopy BDD schemes (8600)</b> <u>S Lyshevski</u> , Rochester Institute of Technology, USA	
18.30	<i>Hall 3</i> Poster session and exhibition						
19.15	<i>IEEE registration desk</i> Coaches depart for Conference dinner						
20.00	<i>Great Hall, University of Birmingham</i> <b>Conference dinner and prize-giving ceremony</b> Best paper award presented by K Jiang and R E Palmer, General Chair and General Co-chair of IEEE NANO 2012 Best Graphene paper award presented by K Jiang and R E Palmer, General Chair and General Co-chair of IEEE NANO 2012 IEEE NTC awards presented by S Goodnick, IEEE NTC President Announcement of IEEE NANO 2013						
22.30	Coaches return to ICC						

## Thursday 23 August

08.00 *Hall 3 foyer*  
Registration

09.00 *Hall 1*  
Chair: S Goodnick, Arizona State University, USA, and D Paul, University of Glasgow, UK  
**(plenary) Materials in the flatland (9311)**  
K Novoselov, The University of Manchester, UK  
*Sponsored by Aixtron*

09.45 **(plenary) Inkjet printing with functional nano fluids (7535)**  
W Zapka, XaarJet AB, Sweden

10.30 *Hall 3*  
Refreshment break, exhibition and poster display

<i>Hall 1</i>	<i>Hall 6</i>	<i>Hall 7a</i>	<i>Hall 7b</i>	<i>Hall 8a</i>	<i>Hall 8b</i>	<i>Hall 11b</i>
<b>ThA2T2: Graphene: growth &amp; fabrication</b> Chair: A Kaul, National Science Foundation, USA, and YY S Huang, University of Cambridge, UK	<b>ThA2T5: Nanomaterials: nanomaterial, nanoparticles synthesis III</b> Chair: D Paul, University of Glasgow, UK, and A Pakdel, National Institute for Materials Science, Japan	<b>ThA2T4: Nanocircuit and neural networks modeling</b> Chair: R Akis, Arizona State University, USA, and YT Chun, University of Cambridge, UK	<b>ThA2T6: Tunneling and single electron devices</b> Chair: H-G Boyen, Ulm University, Germany, and P Mazumder, University of Michigan, USA	<b>ThA2T1: Plasmonics and nanostructures</b> Chair: A Dvurechenskii, Russian Academy of Science, Russia, and YTzeng, National Cheng Kung University, Taiwan	<b>ThA2T3: Heat dissipation in nanocomputing</b> Chair: N Anderson, University of Massachusetts Amherst, USA, and J Izydorczyk, Silesian University of Technology, Poland	
11.00 <b>(invited) Controlled nucleation and growth of graphene: competitive growth and etching in hydrogen diluted methane (8100)</b> <u>YTzeng</u> , National Cheng Kung University, Taiwan	<b>(invited) Novel synthesis of BaTiO<sub>3</sub> nanoparticles (8495)</b> <u>J Huang</u> , TDK Xiamen Co., Ltd., China	<b>(invited) Silicon nanoarray circuits design, modeling, simulation and fabrication (8021)</b> <u>M Graziano</u> , Politecnico di Torino, Italy	<b>(invited) Nanoscale rapid prototyping of nanodevices with focused electron and ion beam triggered chemistry (8427)</b> <u>I Utke</u> , Swiss Federal Laboratories for Materials Science and Technology, Switzerland	<b>(invited) Three dimensional terahertz transformation optics (8926)</b> <u>C Sun</u> , Northwestern University, USA	<b>(invited) Temperature dependence of heat dissipation during Landauer erasure of nanomagnets (8580)</b> <u>B Lambson</u> , University of California, Berkeley, USA	

	Hall 1	Hall 6	Hall 7a	Hall 7b	Hall 8a	Hall 8b	Hall 11b
11.30	<b>Improved graphene growth and fluorination on Cu with clean transfer to surfaces (8246)</b> <u>J Wood</u> , University of Illinois at Urbana-Champaign, USA	<b>Effect of dry physical mixing of cigarette filters as carbon source with KOH on final physical characteristics of the synthesized porous carbon (7450)</b> <u>S Masoudi Soltani</u> , The University of Nottingham, UK	<b>Bitline separated gated multi-bit (BS-GMB) SONOS for high density flash memory (7927)</b> <u>S Kim</u> , Seoul National University, South Korea	<b>Realization of fully tunable FinFET double quantum dots with close proximity plunger gates (7800)</b> <u>F Alkhalil</u> , University of Southampton, UK	<b>Fabry-Pérot resonator with nanostructures for multispectral visible filtering (7618)</b> <u>K Walls</u> , University of Glasgow, UK	<b>There is no Landauer limit: experimental tests of the Landauer principle (7544)</b> <u>G Snider</u> , University of Notre Dame, USA	
11.50 12.00	<b>Direct growth of high-quality mono-layer graphene on insulating substrate by advanced plasma CVD (7594)</b> <u>R Hatakeyama</u> , Tohoku University, Japan	<b>New technology for producing nanopowders and bulk samples of hard metals based on TiC (8632)</b> <u>L Nadaraia</u> , Georgian Technical University, Georgia	<b>Design and simulation of molecular single-electron resistive switches (8647)</b> <u>N Simonian</u> , Stony Brook University, USA	<b>Scaling resonant tunneling diodes and nanowires using SPICE modelling to optimise nanoscale device performance (7921)</b> <u>G Terner</u> , University of Glasgow, UK	<b>Compact fabry-perot electro-optic switch based on n-ZnO/p-Si heterojunction structure (8026)</b> <u>T Ben Massaud</u> , University of Southampton, UK	<b>Energy dissipation in magnonic logic circuits (7727)</b> <u>A Khitun</u> , University of California Riverside, USA	<b>Exhibitor presentation: Oxford Instruments</b> <u>D Haynes</u>
12.10	<b>Octagonal defects in graphene nanoribbons and carbon nanotubes (8764)</b> <u>W Jaskolski</u> , Nicolaus Copernicus University, Poland	<b>Spark plasma sintering of nanopowder and bulk samples of boron carbide (8513)</b> <u>L Nadaraia</u> , Georgian Technical University, Georgia	<b>Electronic transport modelling with HSPICE in random CNT networks (7799)</b> <u>P Lugli</u> , Institute for Nanoelectronics, Germany	<b>Composite aluminum silicon-single electron transistor with tunnel FET features (8624)</b> <u>G Snider</u> , University of Notre Dame, USA	<b>High precision positioning of plasmonic nanoparticle based on damascene process (7694)</b> <u>D Häring</u> , Karlsruhe Institute of Technology, Germany	<b>Resonant clocking circuits for reversible computation (8583)</b> <u>R Jana</u> , University of Notre Dame, USA	
12.30	<b>Simultaneous switching noise and IR drop in graphene nanoribbon Power distribution networks (7093)</b> <u>H Rahaman</u> , Bengal Engineering and Science University Shibpur, India	<b>Directed self-assembly of lipid-A-phosphate lattices (7259)</b> <u>H Paradies</u> , University of Salford, UK	<b>Characterization of thin films by neural networks and analytical approximations (7623)</b> <u>S Gomez</u> , Universidad Autónoma de Madrid, Spain	<b>CMOS compatible multi-bit single-electron transistor operating at room-temperature (7757)</b> <u>J B Choi</u> , Chungbuk National University, South Korea	<b>One mode single-photon waveguide coupled with a two-state atom (7184)</b> <u>P Civaleri</u> , Politecnico di Torino, Italy	<b>Toward nanoprocessor thermodynamics (8762)</b> <u>N Anderson</u> , University of Massachusetts Amherst, USA	<b>Exhibitor presentation: QuantumWise A/S</b> <u>K Stockbro</u>

12.50 *Hall 3*  
Lunch, exhibition and poster display

	<i>Hall 1</i>	<i>Hall 6</i>	<i>Hall 7a</i>	<i>Hall 7b</i>	<i>Hall 8a</i>
	<p><b>ThP1T3: Nanomaterials/nanoparticles, characterization and application</b> Chair: J Huang, TDK Xiamen Co., Ltd., China, and T Almeida, Imperial College London, UK</p>	<p><b>ThP1T2: Carbon nanotubes: growth, properties &amp; fabrication</b> Chair: R Hatakeyama, Tohoku University, Japan, and J Koepke, University of Illinois at Urbana-Champaign, USA</p>	<p><b>ThP1T5: Nanomaterials: Nanomaterial/nanoparticles synthesis II: Graphene</b> Chair: Y Tzeng, National Cheng Kung University, Taiwan, and T Drysdale, University of Glasgow, UK</p>	<p><b>ThA2T4: NEMS modeling</b> Chair: R Rurali, Institut de Ciència de Materials de Barcelona, Spain, and Yoshishige Tsuchiya, University of Southampton, UK</p>	<p><b>ThP1T1: Plasmonic Sensors</b> Chair: C Dang, Brown University, USA, and A Dvurechenskii, Russian Academy of Science, Russia</p>
14.00	<p><b>(invited) Si/SiGe nanoscale engineered thermoelectric materials for energy harvesting (7913)</b> <u>D Paul</u>, University of Glasgow, UK</p>	<p><b>(invited) Nanosoldering carbon nanotube junctions with metal via local chemical vapor deposition for improved device performance (8325)</b> <u>J W Do</u>, University of Illinois at Urbana-Champaign, USA</p>	<p><b>(invited) Nonwetting behavior of "white" graphene coatings (8671)</b> <u>A Pakdel</u>, National Institute for Materials Science, Japan</p>	<p><b>(invited) Simulation study on trajectory of dielectrophoretic force controlled nanowires (8017)</b> <u>G Li</u>, University of Pittsburgh, USA</p>	<p><b>(invited) Laser science in a nanoscopic gap (8925)</b> <u>R Oulton</u>, Imperial College London, UK</p>
14.30	<p><b>Preparation of nanoparticle phosphor films and its application to solar cells (7743)</b> <u>M Kobayashi</u>, Waseda University, Japan</p>	<p><b>Precise alignment of individual carbon nanotubes for nanoelectronics (8763)</b> <u>J Cao</u>, Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland</p>	<p><b>Electrochemical oxygen reduction on nitrogen-containing graphene (8670)</b> <u>S Lyth</u>, Kyushu University, Japan</p>	<p><b>The vibration model of Timoshenko nanowires with surface effects (7392)</b> <u>K He</u>, University of Illinois at Chicago, USA</p>	<p><b>Multi-mode localized surface plasmon resonance sensors for compensation of interfering effects (8621)</b> <u>N Nehru</u>, University of Kentucky, USA</p>
14.50	<p><b>Self-assembled nanoenergetic materials within MEMS platforms (8607)</b> <u>S Lyshevski</u>, Rochester Institute of Technology, USA</p>	<p><b>The behaviors of the flexible vertically aligned carbon nanotube bumps under compression (8702)</b> <u>M Fujino</u>, The University of Tokyo, Japan</p>	<p><b>The direct formation of noble metal (Pd, Pt, Au, and Ag) and graphene nanocomposites from graphite (7485)</b> <u>G H Jeong</u>, Ajou University, South Korea</p>	<p><b>Tensile loading characteristics of free-form and water submerged single layer graphene sheets (7478)</b> <u>V Vijayaraghavan</u>, Nanyang Technological University, Singapore</p>	<p><b>Spoofed surface plasmon mach-zehnder interferometer structure for THz bio-sensing (8578)</b> <u>P Mazumder</u>, University of Michigan, USA</p>
15.10	<p><b>Nitrogen doping of graphene nanoflakes by thermal plasma as catalyst for oxygen reduction in proton exchange membrane fuel cells (8796)</b> <u>D Binny</u>, McGill University, Canada</p>	<p><b>Carbon nanotube - actin hybrid assemblies (8627)</b> <u>Z Ronaghi</u>, West Virginia University, USA</p>	<p><b>Clean synthesis of reduced graphene-TiO<sub>2</sub> composites in ionic liquid (8619)</b> <u>J-J Shim</u>, Yeungnam University, South Korea</p>	<p><b>Heat transfer in nanoelectronics by quantum mechanics (7113)</b> <u>T Prevenslik</u>, QED Radiations, Hong Kong</p>	<p><b>Fabrication of free-standing plasmonic nanoantennas with application for optical break junctions (7958)</b> <u>B Abasahl</u>, Swiss Federal Institute of Technology Lausanne, Switzerland</p>

	Hall 1	Hall 6	Hall 7a	Hall 7b	Hall 8a	
15.30	<b>Fe-NiZn ferrite nanoparticles and their polymer composites for antenna miniaturization (8771)</b> <u>P Parsons</u> , University of Delaware, USA, and US Army Research Laboratory, USA	<b>Observations on defects and contact modes for locally grown CNTs (7829)</b> <u>Q-H Nguyen</u> , Vestfold University College, Norway			<b>Plasmonic persistent photoconductivity of graphene on silver nanoparticles coated SiO<sub>2</sub>/Si (7914)</b> <u>Y Tzeng</u> , National Cheng Kung University, Taiwan	
15.50	Hall 3 Refreshment break, close of exhibition and poster display					
	<b>ThP2T5: Nanomaterials/nanoparticles, characterization and application</b> Chair: K He, University of Illinois, USA, and J Weaver, University of Glasgow, UK	<b>ThP2T2: Graphene properties</b> Chair: R Hatakeyama, Tohoku University, Japan, and G M Landauer, Universitat Politècnica de Catalunya, Spain	<b>ThP2T3: Nanomaterials: nanomaterial/nanoparticles synthesis</b> Chair: A Pakdel, National Institute for Materials Science, Japan, and D Paul, University of Glasgow, UK	<b>ThP2T4: Nanofabrication techniques and nanodevices</b> Chair: M Graziano, Politecnico di Torino, Italy, and I Utke, Swiss Federal Laboratories for Materials Science and Technology, Switzerland	<b>ThP2T6: Nanoscale logic and memory</b> Chair: P Mazumder, University of Michigan, USA, and P Kerntopf, University of Lodz, Poland	<b>ThP2T1: Photonic structures for emission and detection</b> Chair: P P Civaleri, Politecnico di Torino, Italy, and D Häring, Karlsruhe Institute of Technology, Germany
16.30	<b>Effect of gamma radiation on potential ionising radiation detectors and dosimeters based on quantum dots (7831)</b> <u>D Leslie</u> , Brunel University, UK	<b>(invited) Atomic-scale study of scattering and electronic properties of CVD graphene grain boundaries (8474)</b> <u>J Koepke</u> , University of Illinois at Urbana-Champaign, USA	<b>(invited) Hydrothermal synthesis and magnetic properties of homogeneous and core/shell Co<sub>x</sub>Ni<sub>1-x</sub>Fe<sub>2</sub>O<sub>4</sub> nanoparticles (8718)</b> <u>T Almeida</u> , Imperial College London, UK	<b>(invited) In-situ control of quantum point contacts using scanning probe microscopy scratch lithography (7368)</b> <u>R Suda</u> , Tokyo University of Agriculture and Technology, Japan	<b>(invited) Zinc oxide nanowire transistor nonvolatile memory with a ferroelectric polymer interlayer (7734)</b> <u>Y T Chun</u> , University of Cambridge, UK	<b>(invited) Single quantum dot fluorescence enhancement by tunable nanoporous gold (7877)</b> <u>B Keeley</u> , Johns Hopkins University, USA
16.50	<b>Environmental remediation and interfacial properties of nanosilver-decorated WO<sub>3</sub> nanofibers under visible light source (8105)</b> <u>V Intasanta</u> , National Science and Technology Development Agency, Thailand	<b>Transport in graphene on BN and SiC (8579)</b> <u>D Ferry</u> , Arizona State University, USA	<b>Fabrication and optical properties of size-controlled Ag nanodot array via nanoporous alumina mask (7638)</b> <u>M Jung</u> , Korea Institute of Science and Technology, South Korea	<b>Conductive AFM of transfer printed nano devices (7851)</b> <u>W Porod</u> , University of Notre Dame, USA	<b>Low-power multiple-valued SRAM logic cells using single-electron devices (7300)</b> <u>C Chen</u> , University of Windsor, Canada	<b>(invited) Graphene based ultrafast photonics (9381)</b> <u>A C Ferrari</u> , University of Cambridge, UK

	<i>Hall 1</i>	<i>Hall 6</i>	<i>Hall 7a</i>	<i>Hall 7b</i>	<i>Hall 8a</i>	<i>Hall 8b</i>
17.10	<b>Supercritical fluid-assisted synthesis of carbon nanotubes-grafted biocompatible polymer composite (8618)</b> <u>J-J Shim</u> , Yeungnam University, South Korea	<b>Transport measurements of heat dissipation in supported monolayer graphene (7808)</b> <u>S Hornett</u> , University of Exeter, UK	<b>Electrical, morphological and electronic analysis of inkjet printed PEDOT:PSS (8804)</b> <u>P Wilson</u> , University of Surrey, UK	<b>VLSI compatible parallel fabrication of scalable few electron silicon quantum dots (7962)</b> <u>F Alkhalil</u> , University of Southampton, UK	<b>Experimental evidence of scaling effect by using novel crown shape RRAM structure (7733)</b> <u>S Kim</u> , Seoul National University, South Korea	<b>Longitudinal plasmon modes of gold nanorod (8104)</b> <u>J-W Liaw</u> , Chang Gung University, Taiwan
17.30	<b>New carbon nanotube-epoxy composite for dampening microwave cavity resonance (7308)</b> <u>G-L Zhao</u> , Southern University and A & M College, USA	<b>Asymmetric modulation of band graphene fluoride by electric field: a DFT study (7705)</b> <u>R Balu</u> , US Army Research Laboratory, USA	<b>Electronical properties of phosphododecamolybdic acid adsorbed on single-walled carbon nanotube (7353)</b> <u>L Hong</u> , Osaka University, Japan	<b>High frequency hydrogen-terminated diamond field effect transistor technology (7556)</b> <u>D Moran</u> , University of Glasgow, UK	<b>Molecule interaction for QCA computation (7922)</b> <u>M Graziano</u> , Politecnico di Torino, Italy	<b>Red, green, and blue laser action in solid colloidal quantum dot films (8776)</b> <u>C Dang</u> , Brown University, USA
17.50	<b>Distribution of the SERS enhancement factor on the surface of metallic nanoparticles (7583)</b> <u>W Somerville</u> , Victoria University of Wellington, New Zealand	<b>Characterization of surface heat convection of bilayer graphene (8174)</b> <u>W Li</u> , Michigan State University, USA	<b>Systematic circular dichroism study of systems containing cysteine and silver nanoparticles (7438)</b> <u>P Rezanka</u> , Institute of Chemical Technology Prague, Czech Republic	<b>Design and analysis of SET based reconfigurable flip flop (8590)</b> <u>R Kailasam</u> , Anna University, India		
18.10	Close of conference					



## Poster programme

### Education

**P.001 - TAMTAMS: an open tool to understand nanoelectronics (8029)**

M Vacca, Politecnico di Torino, Italy

### Energy: Photovoltaics, Storage

**P.002 - Graphene structured sulfonated poly(ether sulfone)s containing hexabenzocoronene for PEMFC (7622)**

Y-D Lim, Konkuk University, Korea

**P.003 - Poly(tetraphenyl ether sulfone) containing multi quaternary ammonium hydroxide groups for alkaline polymer (7624) electrolyte fuel cell**

S-H Lee, Konkuk University, Korea

**P.004 - Hydrogen permeability of nanocrystalline Al<sub>2</sub>O<sub>3</sub>/ITO membrane by Hot Press Sintering (HPS) (7804)**

T-W Hong, Korea National University of Transportation, Korea

**P.005 - Enhancing morphology and charge extraction of low-bandgap bulk-heterojunction on ZnO nanorod by ultrasonic treated hydrothermal growth (8787)**

L Shiang, National Taiwan University, Taiwan

**P.006 - Fabrication of Cu<sub>2</sub>ZnSnS<sub>4</sub> thin film by sulfurization of stacked solution-based precursors with different copper sources (8788)**

C-Y Kao, National Taiwan University, Taiwan

**P.007 - Synthesis and characterization of poly(benzimidazole-co-thiophene) membrane for high temperature PEMFC (7766)**

J S Choi, Jeonbuk Technopark, Korea

**P.008 - The current density and catalytic properties of Cobalt-based electrocatalysts on carbon paper (7925)**

D M Kim, Hongik University, Korea

### Environment health safety (EHS) and standards

**P.009 - Egr-1 expression induced by ZnO nanoparticles in human keratinocytes (7588)**

S W Son, Korea University College of Medicine, Korea

**P.010 - Trace isotope analysis of rubidium, cesium and potassium with degenerate four-wave mixing method in environmental application (7732)**

Z Ren, Northwest University, China

**P.011 - Regulation of nanostructure in coal-based activated carbon and its application for methylene blue removal (7760)**

G Gong, Beijing Academy of Science and Technology, China

### Industrial applications and commercialization

**P.012 - Commercialization of a magnetic particle spectrometer (7616)**

M Erbe, University of Lubeck, Germany

**P.013 - Water oxidation of multi-walled carbon nanotubes under moderate industrial condition (7794)**

J Liu, Beijing Academy of Science and Technology, China



### Nano/bio-medicine

**P.014 - Living cell imaging and molecular distribution detection of lymphoma cells using atomic force microscopy (7211)**

M Li, Chinese Academy of Sciences, China

**P.015 - Comparison of optical properties of quantum dot-525 nanoparticles and FITC for early detection of breast cancer (7430)**

A S Tabatabaei Panah, Islamic Azad University, Iran

**P.016 - Effects of Fe<sub>3</sub>O<sub>4</sub> nanoparticles on the transcription of genes with iron-responsive elements (7611)**

L Yingxun, Southeast University, China

**P.017 - Effect of ultrafine powderization using low temperature turbo mill on anticancer activity of inonotus obliquus pilat (7754)**

C Kim, Korea University, Korea

**P.018 - Ultrafine powderization using low temperature turbo mill to improve water solubility of red ginseng powder (7755)**

W Kang, Kangwon National University, South Korea

**P.019 - Fabrication of oblique angle deposited Ag nanorods for enhanced fluorescence substrate (7950)**

S-M Kim, Chung-Ang University, Korea

**P.020 - SPIO nanoparticles for biomedical and biotechnological applications (9079)**

K Polakova, Palacky University, Russia

**P.021 - Detection of PC12 cells in-situ realized neurotransmitter using surface-enhancement Raman spectroscopy (8566)**

W El-Said, Assiut University, Egypt

### Nanoelectronics: Devices – SETs, RTDs, QDs, Molecular etc

*Sponsored by Oxford Instruments*

**P.022 - Transport characterization of a gated molecular device with negative differential resistance (7620)**

P Lugli, Technische Universität München, Germany

**P.023 - Tunnel-current based single-molecule identification of DNA/RNA oligmer by using Nano-MCBI (8639)**

T Ohshiro, Osaka University, Japan

**P.024 - Fabrication and characterization of nano-scaled Cr Schottky diodes using AAO templates (8645)**

N Kwon, Sungkyunkwan University, Korea

### Nanoelectronics: Graphene, CNTs, Nanowires

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**P.025 - Effect of power level on rapid microwave-assisted hydrothermal synthesis of vertically aligned ZnO nanowires (7484)**

S M Mahpeykar, Amirkabir University of Technology, Iran

**P.026 - Surfactants-free noble metal/graphene nanocomposites synthesis and their catalytic application (7496)**

S-H Kim, Ajou University, Korea

**P.027 - Multilayer graphene sheets assembled by langmuir-Blodgett for tribology application (7806)**

H Liu, Xi'an Jiaotong University, China

**P.028 - Pyrolysis-assisted graphene exfoliation from graphite particles deposited on photoresist pillars (7817)**

Z Tang, Huazhong University of Science and Technology, China



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**P.029 - The ZnO nanwire controllable synthesis and it's optical properties (7876)**

L Li, Xi'an Jiaotong University, China

**P.030 - Multilayer conformal coating of highly dense multi-walled carbon nanotubes bundles (7930)**

G Fiorentino, Delft University of Technology, The Netherlands

**P.031 - Electrical property of printed transistors fabricated with various types of carbon nanotube Ink (8479)**

H Numata, Technology Research Association for Single Wall Carbon Nanotubes, Japan

**P.032 - Large single crystals of graphene on melted copper using chemical vapour deposition (8557)**

Y Wu, University of Oxford, UK

**P.033 - Silica-carbon nanotubes composite coatings as saturable absorbers (8682)**

J Pilipavicius, Vilnius University, Lithuania

**P.034 - Electrical characterization of 1D SnO<sub>2</sub> nanowires (8793)**

W Izydorczyk, Silesian University of Technology, Poland

**P.035 - Dye-sensitized solar cells using graphene-based counter electrode (8978)**

K-H Hung, Chung-Yuan Christian University, Taiwan

**P.036 - Synthesis and characterization of MWNT-conducting polymer nanocomposites by spontaneous polymerization of 2-ethynylpyridine (7906)**

K T Lim, Pukyong National University, Korea

**P.037 - Sonochemical assisted ZnO-Graphene nanocomposites and their properties (8846)**

A Qurashi, King Fahd University of Petroleum and Minerals, Saudi Arabia

### Nanoelectronics: Reliability and Yield

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**P.038 - In-situ nanoscale characterizaiton of annealing effect on TiN/Ti/HfO<sub>x</sub>/TiN structure for resistive random access memory (ReRAM) (7966)**

H Shima, National Institute of Advanced Industrial Science and Technology, Japan

### Nanofabrication

**P.039 - Optoelectronic properties in vertically aligned ZnO/Si-nanopillars (7025)**

H-Y Lee, National Synchrotron Radiation Research Center, Taiwan

**P.040 - Fabrication and crystallization of AAO template for biosensor applications (7590)**

S-G Lee, Gyeongsang National University, South Korea

**P.041 - Optimization of exposure parameters and lift-off process using a negative tone electron beam resist (7627)**

A Silva, INESC-MN and IN, Portugal

**P.042 - Fabrication and characterization of monolayer and bilayer colloidal-crystal films with various diameters polystyrene nanospheres by spin-coating (7762)**

J Chen, National University of Defense Technology, China

**P.043 - Controlled electrosharpening of tungsten (7838)**

R Stone, Durham University, UK

**P.044 - A composite hardness stamp in 184 PDMS for nanostructures transfer in high fidelity (7870)**

Z Cui, Sichuan University, China



**P.045 - Layer-by-layer 3D printing of Si micro- and nanostructures by Si deposition, ion implantation, and selective Si etching (7917)**

F Niklaus, Royal Institute of Technology (KTH Stockholm), Sweden

**P.046 - Development of cell fixation biochip for atomic force microscope (7967)**

R Kenmochi, Kogakuin University, Japan

**P.047 - Growth behaviour and electrical resistivity relationship of silver nanoparticle thin film (8544)**

K P Mandal, Chosun University, South Korea

**P.048 - Immersed nanospheres super-lithography for the fabrication of sub-70nm nanoholes with period below 700nm (8555)**

Z Cui, Sichuan University, China

**P.049 - Diversification of nanostructure morphology by modifying angle-resolved heterogeneous shadow mask (8586)**

C Wang, Automation National University of Defense Technology, China

**P.050 - Nano-scale reactive-ion dry-etching with electron-beam-baked resists (8640)**

T Ohshiro, Osaka University, Japan

**P.051 - Fabrication of gating nanopore towards single-biomolecule electrical identification (8641)**

Y Sasaki, Osaka University, Japan

**P.052 - A novel nanofabrication process to fabricate shell nanostructures of MetalSiO<sub>2</sub> composite material (8654)**

D Di, National University of Defense Technology, China

**P.053 - Development of a torsional paddle microresonator for mass detection (8717)**

C Anthony, University of Birmingham, UK

**P.054 - Characterisation of nanoporous materials using focused ion beam milling method (8719)**

C Anthony, University of Birmingham, UK

**P.055 - Analysis on probe-sample interaction for scanning near-field photolithography (8758)**

Z Liu, Swansea University, UK

**P.056 - Heavy ion implantation through nanoporous masks: an aberration corrected STEM/EELS study (8972)**

U Bhatta, University of Sheffield, UK

**P.057 - Trapping and patterning of nanoparticles from spray (9080)**

M Tichem, Delft University of Technology, The Netherlands

**P.058 - Fabrication and characterization of electrospun silver nanofibres with unmatched porosity (9081)**

F S Jahir Hussain, Universiti Malaysia Pahang, Malaysia

**P.059 - Fabrication and performance test of a compact-type megasonic waveguide for nano-particle cleaning (7797)**

H Kim, Korea Institute of Machinery and Materials, South Korea

**P.060 - Nucleation and growth of epitaxial SrRuO<sub>3</sub> thin films on vicinal (001) SrTiO<sub>3</sub> substrates (7883)**

D M Kim, Hongik University, Korea

**P.061 - Combined nanopatterning and characterization of silicon surface using scanning tunneling microscopy with conductive diamond tip (8573)**

O Lysenko, V. Bakul Institute for Superhard Materials, Ukraine



### Nanofluidics

**P.062 - Effect of buffer concentration for the dynamics of DNA stretching with the molecular combing technique (7773)**

Z Ren, Northwest University, China

**P.063 - Rapid fabrication of leak-free, gate-all-around ionic field-effect transistor for control of ions in nanofluidic environment (7826)**

S Shin, Yonsei University, South Korea

### Nanomagnetics

**P.064 - Magneto-optical properties of Fe<sup>3+</sup> ions in Bi<sub>4</sub>Ge<sub>3</sub>O<sub>12</sub> (7975)**

P Petkova, Shumen University, Bulgaria

**P.065 - Modeling interaction between Co/Pt nanomagnets and Permalloy domain wall for nanomagnet logic (8774)**

W Porod, University of Notre Dame, USA

### Nanomaterials: Nanomaterials -nanoparticle synthesis

**P.066 - One-step synthesis of PEG coated gold nanoparticles by rapid microwave heating (7218)**

S K Seol, Korea Electrotechnology Research Institute, Korea

**P.067 - Production of carbon nanotubes and nano-clusters by the JxB arc-jet discharge method (7378)**

T Mieno, Shizuoka University, Japan

**P.068 - Hybrid nanocomposites of polystyrene and multiwalled carbon nanotubes with well-defined polystyrene via aromatic interactions (7475)**

J-H Lee, Korea National University of Transportation, South Korea

**P.069 - Facile synthesis of hydrophobic calcium carbonate via aqueous reaction route (7551)**

T Charinpanitkul, Chulalongkorn University, Thailand

**P.070 - Comparison of HgI<sub>2</sub> nanostructures obtained in suspension in ODE and ODE/ODA (7552)**

M Perez Barthaburu, Universidad de la Republica, Uruguay

**P.071 - Leakage current properties of PZT/BFO multilayer thin films (7592)**

S H Jo, Gyeongsang National University, Korea

**P.072 - Effect of ultrafine powderization on enzymatic hydrolysis of wheat flour (7749)**

B Lee, Eco D and S Co. Ltd., South Korea

**P.073 - Effect of ultrafine powderization on physicochemical characteristic change of onion powder (7752)**

J Lim, Kangwon National University, South Korea

**P.074 - Carbon nanotubes grown on polyimide by chemical vapour deposition (7788)**

K Schneider, Institute of Applied Physics, Switzerland

**P.075 - Optical properties of silver nanocrystal synthesized by a new strategies: experiments supported by DDA calculation (7884)**

W Mingqiang, Xi'an Jiaotong University, China

**P.076 - Ceramic nanocomposite by electrodeposition of nickel into porous alumina matrix (7908)**

A Mohammadkhani, University of Birmingham, UK



**P.077 - Synthesis of iron silicide-based composite particulates and their performance for lithium-ion battery negative electrode (7912)**

H Itahara, Toyota Central R&D Laboratories., Inc., Japan

**P.078 - Hydrothermal fabrication and optical properties of wheatear-like ZnO array (8449)**

Z Zhang, Northwest University, China

**P.079 - High ordered particle-in-cavity nanostructure arrays for surface enhanced raman spectroscopy (8614)**

D Di, National University of Defense Technology, China

**P.080 - Gold electrodeposition on carbon electrodes (8895)**

D Lomax, The University of Manchester, UK

**P.081 - Resistive coupling of localized plasmon resonances in metallic nanostripes through a graphene layer (8920)**

B Thackray, The University of Manchester, UK

**P.082 - Catalyst based on Pt, Sn and Ni: effect of carbon functionalization on ethanol electro-oxidation (9109)**

E S Rieder, Universidade Luterana do Brasil, Brazil

**Nanomaterials: Nanomaterials-nanoparticles, Characterization and Application**

**P.083 - Functionalized carbon nanotubes reinforced polymer electrolyte membranes prepared by a surfactant-assisted method for fuel cell applications (7488)**

S-J Choi, Kyungpook National University, South Korea

**P.084 - Synthesis of HgTe quantum dot without H<sub>2</sub>Te gas and their application for NIR photodetection (7495)**

M Kang, Ajou University, South Korea

**P.085 - Spray deposition of silver nanowire transparent conductive networks (7598)**

V Scardaci, Hewlett-Packard, UK

**P.086 - Synthesis and characterization of CdSe-doped Li<sub>2</sub>O-Al<sub>2</sub>O<sub>3</sub>-P<sub>2</sub>O<sub>5</sub> glass (7710)**

M Elisa, National Institute of R&D for Optoelectronics, Romania

**P.087 - Enhancement of ginsenoside compounds by far infrared irradiation in ultra fine powdered red ginseng(Panax ginseng C.A. Meyer) (7736)**

D G Cho, Kangwon National University, Korea

**P.088 - On the Einstein relation under size quantization in nanostructured materials (7765)**

S Singha Roy, JIS College of Engineering, India

**P.089 - Magnetic and optical properties of ZnO nanowire arrays synthesized by a simple hydrothermal process (7798)**

J Yun, Northwest University, China

**P.090 - The bottom-up chemical growth of ZnO NRs on patterned IDEs and its potential application as micro-structured sensors (7860)**

W Minqiang, Xi'an Jiaotong University, China

**P.091 - Fabrication and evaluation of composite bipolar plate to develop a compact and lightweight direct methanol fuel cell stack (7889)**

K Kang, Inha University, South Korea

**P.092 - A novel assay for detection platform based on plasma treated CNT through electrical property (7890)**

J-Y Lee, Korea University, South Korea

**P.093 - ON/OFF switching behavior in Ag<sub>2</sub>Se thin film (8170)**

M Park, Myongji University, South Korea



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**P.094 - Development and reliability investigation of Nano-SiC@Ag-enhanced high thermal conductive adhesives (8609)**

N Wang, Chalmers University of Technology, Sweden

**P.095 - Chemical sensing with multi walled carbon nanotube (8638)**

M Margala, University of Massachusetts Lowell, USA

**P.096 - Gold nanoparticles as a floating gate in PVP-based organic memory devices (8665)**

A Sleiman, Bangor University, UK

**P.097 - Enzyme conjugation and biosensing with quantum dots: a photoluminescence study (8700)**

D Debruyne, KU Leuven, Belgium

**P.098 - Nanostructured sensors in thick-film performance (8736)**

H Klym, Lviv Polytechnic National University, Ukraine

**P.099 - AFM investigation of the aggregation behavior of Alzheimer's disease abeta peptides (8748)**

A-A Ungureanu, KU Leuven, Belgium

**P.100 - Using chemical solution process to fabricate zinc oxide micro/nano-structure on GaN with different growth time (8750)**

C-W Ku, National Taiwan University, Taiwan

**P.101 - Site-specific bio-functionalization of surfaces by means of metal nanostructures (8760)**

T Peissker, KU Leuven, Belgium

**P.102 - Electron beam induced surface morphology changes of CeO<sub>2</sub> nanocrystals: an in-situ aberration corrected TEM study (8971)**

U Bhatta, University of Sheffield, UK

**P.103 - Develop of advanced bipolar plate using carbon fiber prepreg and graphite/polymer composite materials (9195)**

K Kang, Inha University, Korea

**P.104 - Unidirectional transport of HMM coated particles on fascin crosslinked F-actin arrays (8792)**

Z Ronaghi, West Virginia University, USA

**P.105 - Core-shell nanofibers based on carbon nanotubes and poly(ethylene terephthalate) (7440)**

H J Yoo, Konkuk University, South Korea

**P.106 - Oriented TiO<sub>x</sub>N<sub>y</sub> nano-pillar arrays with embedded Ag nanoparticles for visible-light photocatalysis (7474)**

W Jiang, Xi'an Jiaotong University, China

**P.107 - Synthesis of graphene/polypyrrole composites by click chemistry (7584)**

H J Ryu, Konkuk University, South Korea

**P.108 - The formation of ZnO nanotube through rolling up of nanosheet (7595)**

N Yuan, Changzhou University, China

**P.109 - PEDOT-coated core-shell graphene nanoplatelet nonofibers by vapor phase polymerization (7774)**

J K Kwon, Konkuk University, South Korea

**P.110 - Direct observation of nano-sized defects in thin films formed by sputter deposition (7775)**

E-W Jeong, Pusan National University, South Korea

**P.111 - Electrospun polymer nanofibres: fabrication, characterisation and applications (8899)**

V Jacobs, CSIR - Materials Science & Manufacturing, South Africa



### Nanometrology, Characterization

**P.112 - Surface plasmon resonance characteristic study of graphene-on-gold structure (7312)**

H Cai, Chinese Academic of Sciences, China

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S Katou, Kogakuin University, Japan

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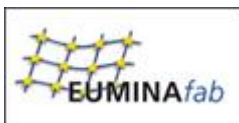
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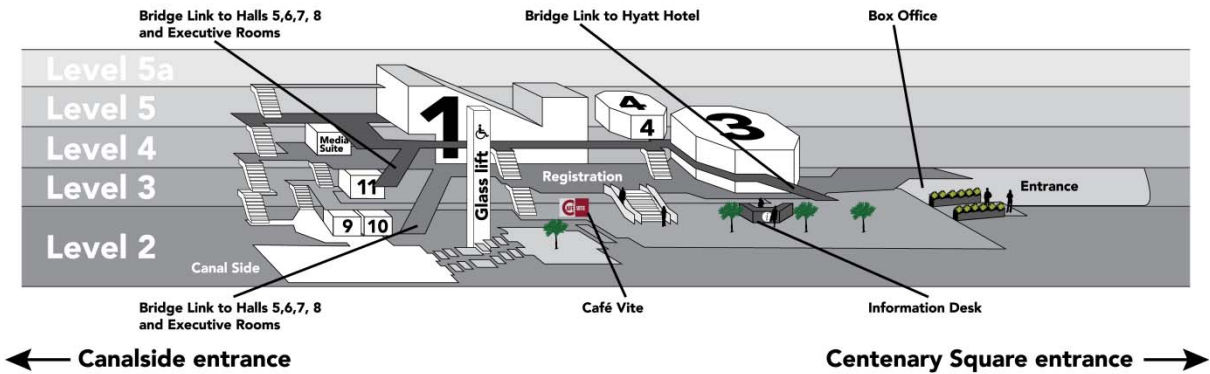
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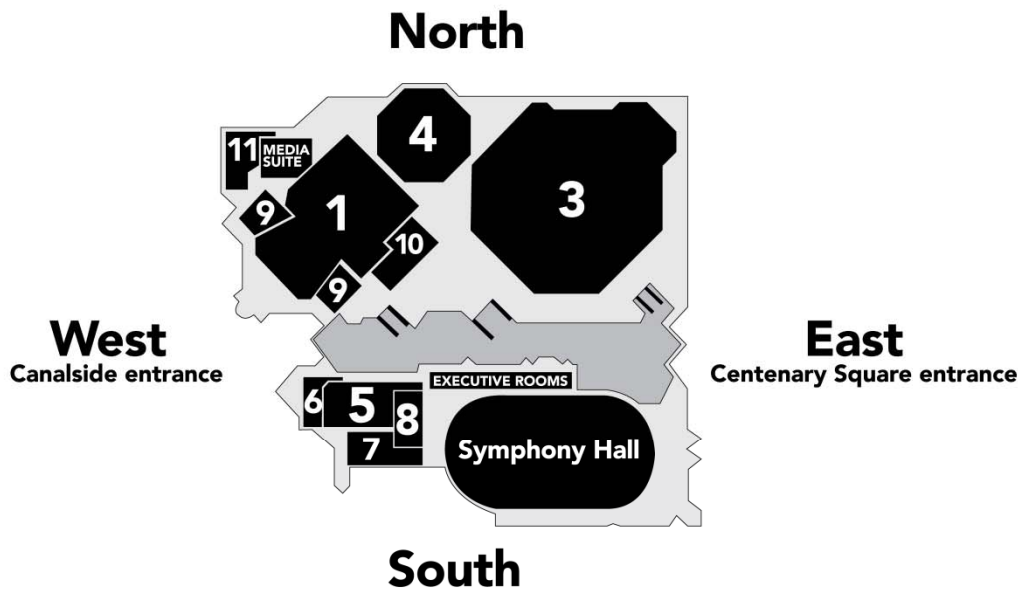
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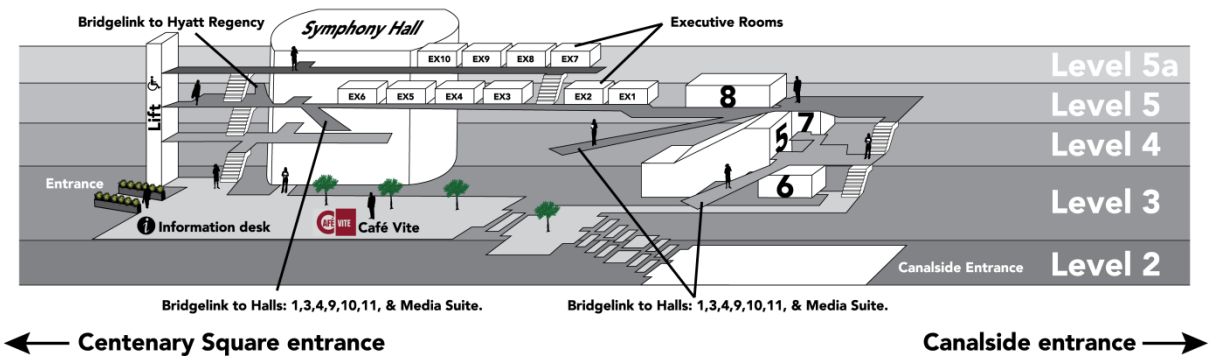
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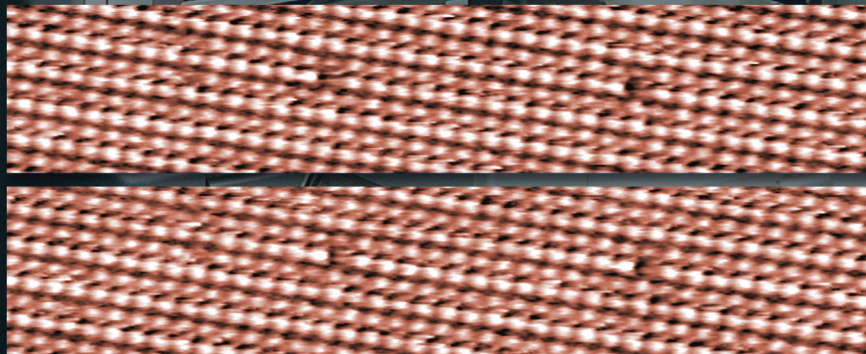
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