

## SCIENTIFIC PROGRAM

TUESDAY SEPTEMBER 24<sup>th</sup>, 2019

### Plenary 1

08.45-09.30 JUPITER HALL

#### Moore's Law - Past, Present and Future

Yan Borodovsky

Former Intel Senior Fellow, USA

### Plenary 2

09.30-10.15 JUPITER HALL

#### How to arrest and transport biological nano-objects one at a time: Nanovalving of individual Viruses and Macromolecules in liquids

Dimos Poulikakos

ETH Zurich, Institut für Energietechnik, Switzerland

10.15-10.45

COFFEE BREAK

### Session A1: EUV and Talbot Lithography

10:45 - 12:00 NEFELI HALL

#### 10.45 A1-1. Extreme ultraviolet interference lithography for in-lab photoresist development and large-area nanopatterning

Brose S<sup>1,2</sup>, Danylyuk S<sup>1,2</sup>, Kaiser C<sup>3</sup>, Gerngroß M<sup>3</sup>, Stollenwerk J<sup>1,2,4</sup>, Schirmer M<sup>3</sup>, Loosen P<sup>1,2,4</sup>

<sup>1</sup>RWTH Aachen University, <sup>2</sup>JARA – Fundamentals of Future Information Technology, <sup>3</sup>Allresist GmbH, <sup>4</sup>Fraunhofer Institute for Laser Technology, Germany

#### 11.00 A1-2. Fundamental Research Activities of Extreme Ultraviolet Lithography at New SUBARU Synchrotron facility

Watanabe T<sup>1</sup>, Harada T<sup>1</sup>

<sup>1</sup>University of Hyogo, Japan

#### 11.15 A1-3. Large-area resistless patterning on hydrogen-terminated Si using EUV lithography

Tseng L<sup>1</sup>, Kazazis D<sup>1</sup>, Constantinou P<sup>2</sup>, Stock T<sup>3</sup>, Curson N<sup>3</sup>, Schofield S<sup>2</sup>, Aeppli G<sup>1,4,5</sup>, Ekinci Y<sup>1</sup>

<sup>1</sup>Paul Scherrer Institut, <sup>2</sup>Department of Physics and Astronomy, University College London, <sup>3</sup>London Centre for Nanotechnology, University College London, <sup>4</sup>EPFL, <sup>5</sup>ETH Zurich, Switzerland

#### 11.30 A1-4 Simulation and nanofabrication of complex EUV achromatic Talbot lithography masks for high-resolution and high-throughput patterning

Kazazis D<sup>1</sup>, Tseng L<sup>1</sup>, Ekinci Y<sup>1</sup>

<sup>1</sup>Paul Scherrer Institute Switzerland

#### 11.45 A1-5 Displacement Talbot Lithography – an emerging technology for rapid nanopatterning on 8-inch scale

Jefimovs K<sup>1,2</sup>, Kagias M<sup>1,2</sup>, Vila-Comamala J<sup>1,2</sup>, Shi Z<sup>1,2</sup>, Dais C<sup>3</sup>, Solak H<sup>3</sup>, Romano L<sup>1,2,4</sup>, Xie S<sup>1</sup>, Schiff H<sup>1</sup>, Stampanoni M<sup>1,2</sup>

<sup>1</sup>Paul Scherrer Institut, <sup>2</sup>Institute for Biomedical Engineering, University and ETH Zürich, <sup>3</sup>Eulitha AG, <sup>4</sup>Department of Physics and CNR-IMM- University of Catania, Italy

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Session B1: Nanostructured Surfaces

10:45- 12:00 DELPHI HALL

**10.45 B1-1 UV-sensor made by capillary filling metal inks on prepatterned substrates**

**Schift H**<sup>1</sup>, Al Jassin-Al-Hashemi E<sup>1,2</sup>, Horváth B<sup>1</sup>, Bolat S<sup>3</sup>

<sup>1</sup>Paul Scherrer Institut (psi), <sup>2</sup>University of Basel, <sup>3</sup>Swiss Federal Laboratories for Materials Science and Technology (EMPA), Switzerland

**11.00 B1-2 Direct Nanoimprinting of Colloidal Self-Organizing Nanowire/-particle Inks for Flexible, Transparent Electrodes**

**Engel L**<sup>1</sup>, Maurer J<sup>1</sup>, Kister T<sup>1</sup>, González-García L<sup>1</sup>, Kraus T<sup>1,2</sup>

<sup>1</sup>INM - Leibniz Institute for New Materials, <sup>2</sup>Colloid and Interface Chemistry, Saarland University, Germany

**11.15 B1-3 Graphene on functional polymers – evaluation of stress and doping, and applications**

**Müller M**<sup>1</sup>, Nasri R<sup>1,2</sup>, Hafizi F<sup>1</sup>, Polensky J<sup>1</sup>, Herrmann C<sup>2</sup>, Lohse M<sup>3</sup>, Thesen M<sup>3</sup>, Grützner G<sup>3</sup>, Fernandez-Cuesta I<sup>1</sup>

<sup>1</sup>University Of Hamburg, Institute for nanostructure and solidstate physics, <sup>2</sup>University of Hamburg, Department of Chemistry, <sup>3</sup>micro resist technology GmbH, Germany

**11.30 B1-4 Fabrication of A Low-Noise Interchangeable Platform for Nanostructured Transport Measurements in Fluidic, Cryogenic, and In Situ Electron Microscopy Environments**

**Swett J**<sup>1</sup>

<sup>1</sup>University of Oxford, UK

**11.45 B1-5 Stable fabrication of anti-reflection with nano-structure for high-temperature application**

**Kurihara K**<sup>1</sup>, Hokai R<sup>1</sup>, Miyake K<sup>1</sup>

<sup>1</sup>National Institute of Advanced Industrial Science and Technology (AIST), Japan

## Session C1: Sensors & Actuators I

### 10.45-12.00 JUPITER HALL

#### 10.45 C1-1\_INV Flexible nano-electronics via large-area manufacturing paradigms

**Thomas Anthopoulos**

King Abdullah University of Science and Technology (KAUST) and KAUST Solar Centre, Saudi Arabia

#### 11.15 C1-2 Optimized magnet configurations for Lorentz actuation of a $\mu$ -Coriolis mass flow sensor

**Schut T<sup>1</sup>**, Klein Y<sup>1</sup>, Wiegerink R<sup>1</sup>, Gardeniers H<sup>1</sup>, Lötters J<sup>1,2</sup>

<sup>1</sup>University Of Twente, <sup>2</sup>Bronkhorst High-tech BV

#### 11.30 C1-3 Optical Waveguide Switching Based on a Co-Integrated SMA Bimorph Actuator

**Rastjoo S<sup>1</sup>**, Fechner R<sup>1</sup>, Kötz M<sup>1</sup>, Kohl M<sup>1</sup>

<sup>1</sup>Karlsruhe Institute Of Technology (kit) / Institute Of Microstructure Technology (imt), Germany

#### 11.45 C1-4 An optomechanical resonator with a plasmonic half bull's eye antenna and an aperture for wavelength detection

**Kometani R<sup>1</sup>**, Tanaka K<sup>2</sup>, Warisawa S<sup>1</sup>

<sup>1</sup>The University of Tokyo, <sup>2</sup>The University Of Tokyo, Japan

## Session D1: Nanomedicine & Drug delivery

### 10.45-12.00 ATHENA HALL

#### 10.45 D1-1 Ultrasound-triggered PLGA-microPlates degradation for on-command drug delivery

**Sciurti E<sup>1,2</sup>**, Primavera R<sup>3</sup>, Di Francesco M<sup>3</sup>, Di Mascolo D<sup>3</sup>, Rizzo A<sup>1,2</sup>, Balena A<sup>1,2</sup>, Padmanabhan S<sup>2</sup>, Rizzi F<sup>1</sup>, Decuzzi P<sup>3</sup>, De Vittorio M<sup>1,2</sup>

<sup>1</sup>Center for Bio-Molecular Nanotechnologies, Istituto Italiano di Tecnologia, <sup>2</sup>Dipartimento di Ingegneria dell'Innovazione, Università del Salento, <sup>3</sup>Laboratory of Nanotechnology for Precision Medicine, Istituto Italiano di Tecnologia, Italy

#### 11.00 D1-2 Tumour spheroids formed in a caged space for drug and microfluidic based assays

**He Y<sup>1</sup>**, Huang B<sup>1</sup>, Rofaani E<sup>1</sup>, Hu J<sup>1</sup>, Liu Y<sup>1</sup>, Pitingolo G<sup>1</sup>, Wang L<sup>2</sup>, Shi J<sup>2</sup>, Aime C<sup>1</sup>, Chen Y<sup>1</sup>

<sup>1</sup>École Normale Supérieure-PSL Research University, Sorbonne Universités - UPMC Univ Paris 06, CNRS UMR 8640 PASTEUR, <sup>2</sup>MesoBioTech, France

#### 11.15 D1-3\_INV Nanomedicine with Silicon Nanostructures

**Nicolas Voelcker**

Monash University, Melbourne Center for Nanofabrication, Australia

#### 11.45 D1-4 Fabrication and ex vivo retention study of biodegradable microcontainers for oral drug delivery

**Abid Z<sup>1,2</sup>**, Mosgaard M<sup>1,3</sup>, Manfroni G<sup>1,2</sup>, Petersen R<sup>1,2</sup>, Nielsen L<sup>1,3</sup>, Müllertz A<sup>1,4</sup>, Boisen A<sup>1,3</sup>, Keller S<sup>1,2</sup>

<sup>1</sup>The Danish National Research Foundation and Villum Foundation's Center for Intelligent Drug Delivery and Sensing Using Microcontainers and Nanomechanics (IDUN), <sup>2</sup>National Centre for Nano Fabrication and Characterization, DTU Nanolab, Technical University of Denmark, <sup>3</sup>Department of Health Technology, DTU Health Tech, Technical University of Denmark, <sup>4</sup>Department of Pharmacy, Faculty of Health and Medical Sciences, University of Copenhagen, Denmark

TUESDAY SEPTEMBER 24th, 2019

12.00-13.00

LUNCH BREAK

Session A2: Etching

13:00 - 14:15 NEFELI HALL

**13.00 A2-1 Etch challenges on Single and Dual SOI fins patterning for CFET at 25nm fin pitch**

**Chan B<sup>1</sup>**, Boemmels J<sup>1</sup>, Ryckaert J<sup>1</sup>, Zhang L<sup>1</sup>, Tao Z<sup>1</sup>, Altamirano Sanchez E<sup>1</sup>, de Marneffe J<sup>1</sup>

<sup>1</sup>Imec, Leuven, Belgium

**13.15 A2-2 On the formation of Black Silicon in SF6-O2 plasma: BSi on Demand**

**Nguyen V<sup>1</sup>**

<sup>1</sup>Technical University of Denmark

**13.30 A2-3\_INV Applications of Atomic Layer Deposition (ALD) and Atomic Layer Etch (ALE) in Advanced Semiconductor Manufacturing**

**Michal Danek**

Lam Research Corporation, USA

**14.00 A2-4 Self-limiting Atomic Layer Etching of SiO<sub>2</sub> using Low Temperature Cyclic Ar/CHF<sub>3</sub> Plasma**

**Cabrini S<sup>1</sup>**, Dallorto S<sup>1,2,3</sup>, Goodyear A<sup>2</sup>, Cooke M<sup>2</sup>, Dhuey S<sup>1</sup>, Szornel J<sup>1</sup>, Schwartzberg A<sup>1</sup>, Rangelow I<sup>3</sup>

<sup>1</sup>Lawrence Berkeley National Laboratory, <sup>2</sup>Oxford Instruments Plasma Technology, <sup>3</sup>Ilmenau University of Technology, USA

Session B2: Wetting I

13:00- 14:15 DELPHI HALL

**13.00 B1-1\_INV What can and cannot be done with Superhydrophobic, or Omnipobic surfaces?**

**Alidad Amirfazli**

York University, Canada

**13.30 B2-2 Fabrication of Elastic Metallic Superhydrophobic Surfaces**

Mirmohammadi S<sup>1</sup>, Hoshian S<sup>1,2</sup>, P. Jokinen V<sup>1</sup>, **Franssila S<sup>1</sup>**

<sup>1</sup>Aalto University, <sup>2</sup>Advacam Ltd, Finland

**13.45 B2-3 Fully Organic and Biodegradable, Cellulose-based, Superhydrophobic Materials**

**Milioniis A<sup>1</sup>**, Sharma C<sup>1</sup>, Hopf R<sup>1</sup>, Uggowitz M<sup>1</sup>, Bayer I<sup>2</sup>, Poulikakos D<sup>1</sup>

<sup>1</sup>ETH Zurich, <sup>2</sup>Istituto Italiano di Tecnologia, Switzerland

**14.00 B2-4 Fabrication and Characterization of Anti-Fogging Surfaces Templated from Block-Copolymer Self-Assembly**

**Mandsberg N<sup>1</sup>**, Telecka A<sup>2</sup>, Ludvigsen E<sup>2</sup>, Taboryski R<sup>2</sup>

<sup>1</sup>DTU Health Tech, <sup>2</sup>DTU Nanolab, Denmark

TUESDAY SEPTEMBER 24th, 2019

Session C2: Sensors & Actuators II

13.00-14.15 JUPITER HALL

**13.00 C2-1 Micro fabricated electron optical systems**

**Heerkens C**<sup>1</sup>, Krielaart M<sup>1</sup>, Kruit P<sup>1</sup>

<sup>1</sup>TU Delft faculty of applied sciences

**13.15 C2-2 Silicon-based Micro Oscillating Heat Pipes for High Energy Physics and Space Applications**

**Frei T**<sup>1,2,3</sup>, Alvarez Feito D<sup>1</sup>, Bourban G<sup>3</sup>, Catinaccio A<sup>1</sup>, Despont M<sup>2</sup>, Gass V<sup>3</sup>, Hoogerwerf A, Laudi E<sup>1</sup>, Mapelli A<sup>1</sup>

<sup>1</sup>CERN, <sup>2</sup>CSEM, <sup>3</sup>EPFL, Switzerland

**13.30 C2-3 Fabrication of Liquid Metal Based Deformable Optics: a Synergy Between Soft Lithography and FabLab Technologies**

**Businaro L**<sup>1</sup>, Bertani F, De Ninno A<sup>1</sup>, Giannitelli S<sup>2</sup>, Rainer A<sup>2</sup>, Vona G<sup>3</sup>, Gerardino A<sup>1</sup>

<sup>1</sup>CNR-IFN Institute for Photonics and Nanotechnologies, <sup>2</sup>Università Campus biomedico, Tissue Engineering and Chemistry for Engineering, <sup>3</sup>Itlogix SnC, Italy

**13.45 C2-4 Spatially controlled 3D origami MEMS actuation using focused electron beam exposure and polymer densification**

**Kirchner R**<sup>1</sup>, Killge S<sup>1</sup>, Richter K<sup>1</sup>, Kazazis D<sup>2</sup>, Zhang R<sup>1</sup>, Bartha J<sup>1</sup>

<sup>1</sup>TU Dresden, <sup>2</sup>Paul Scherrer Institute, Germany

**14.00 C2-5 Fabrication and characterization of SMA thick film actuator array for high power tactile display**

**Xu J**<sup>1</sup>, Kimura Y<sup>1</sup>, Tsuji K<sup>1</sup>, Abe K<sup>2</sup>, Shimizu T<sup>2</sup>, Hasegawa H<sup>2</sup>, Mineta T<sup>1</sup>

<sup>1</sup>Yamagata University, <sup>2</sup>Tokai Rika CO. LTD, Japan

TUESDAY SEPTEMBER 24th, 2019

Session D2: Biosensors I

13.00-14.15 ATHENA HALL

**13.00 D2-1 Application of junctionless nanowire transistors as ultrasensitive biosensors**

**Georgiev Y<sup>1,2</sup>**, Petkov N<sup>3</sup>, Yu R<sup>3</sup>, Nightingale A<sup>4</sup>, Buitrago E<sup>5</sup>, Lotty O<sup>3</sup>, deMello J<sup>4</sup>, Ionescu A<sup>5</sup>, Holmes J<sup>3</sup>

<sup>1</sup>Institute Of Ion Beam Physics And Materials Research, Helmholtz-Centrum Dresden-rossendorf (HZDR), <sup>2</sup>Institute of Electronics at the Bulgarian Academy of Sciences, <sup>3</sup>Materials Chemistry & Analysis Group, School of Chemistry and Tyndall National Institute, University College Cork, <sup>4</sup>Imperial College London, <sup>5</sup>Nanoelectronic Devices Laboratory (Nanolab), École Polytechnique Fédéral de Lausanne (EPFL), Switzerland

**13.15 D2-2 Nanoplasmonic mid-IR biosensors for ultrasensitive molecular spectroscopy**

**John-Herpin A<sup>1</sup>**, Tittl A<sup>1</sup>, Soler M<sup>1</sup>, Altug H<sup>1</sup>

<sup>1</sup>Ecole Polytechnique Federale de Lausanne, Switzerland

**13.30 D2-3 Non-invasive bladder cancer detection based on localized surface plasmon resonance sensing approach**

Yang Z<sup>1</sup>, Chiu Y<sup>2</sup>, **Chang W<sup>3</sup>**, Lin C<sup>1</sup>

<sup>1</sup>National Cheng Kung University, <sup>2</sup>Taipei City Hospital, <sup>3</sup>National Pingtung University, Taiwan

**13.45 D2-4 Silicon-based Monolithic Spectroscopic Circuit for Label-free Point-of-Need Diagnostics**

Misiakos K<sup>1</sup>, Makarona E<sup>1</sup>, Hoekman M<sup>2</sup>, Fyrogenis R<sup>3</sup>, Tukkiniemi K<sup>4</sup>, Jobst G<sup>5</sup>, Petrou P<sup>6</sup>, Kakabakos S<sup>6</sup>, Salapatas A<sup>1</sup>, Goustouridis D<sup>3</sup>, Harjanne M<sup>4</sup>, Heimala P<sup>4</sup>, Budkowski A<sup>7</sup>, Lees M<sup>8</sup>, **Raptis I<sup>1</sup>**

<sup>1</sup>Institute Of Nanoscience and Nanotechnology, NCSR Demokritos, <sup>2</sup>LioniX BV, <sup>3</sup>ThetaMetrisis S.A., <sup>4</sup>VTT, <sup>5</sup>Jobst Technologies GmbH, <sup>6</sup>Institute of Nuclear & Radiological Sciences and Technology, Energy & Safety, NCSR Demokritos, <sup>7</sup>Jagellonian University, <sup>8</sup>EUROFINS, Greece

**14.00 D2-5 Cost-Effective Three-Dimensional Plasmonic SERS Papers for Rapid Paraquat Poisoning Diagnosis with Portable Raman Spectrometer**

Chen Y<sup>1</sup>, **Chang S<sup>2</sup>**, Sun A<sup>1</sup>, Chen H<sup>2</sup>, Wan D<sup>1</sup>

<sup>1</sup>National Tsing Hua University, <sup>2</sup>National Taiwan University, Taiwan

14.15-16.15

POSTER SESSION (even numbers)

TUESDAY SEPTEMBER 24th, 2019

Plenary 3

16.15-17.00 JUPITER HALL

Emerging Technologies for Biohybrid Devices

**Shoji Takeuchi**

*Tokyo University, Japan*

Keynote Lecture on Innovation

17.00-17.45 JUPITER HALL

Innovation Mindset: the top 10 critical insights every technology entrepreneur should know

**Fotis Filippopoulos**

*Curious Inc. and International Hellenic Univ., Greece*

Session A3: Modeling & Metrology

18.00-19.00 NEFELI HALL

**18.00 A3-1 Deep Learning Nanometrology of Line Edge Roughness**

Giannatou E<sup>3,5</sup>, **Constantoudis V**<sup>1,5</sup>, Papavieros G<sup>1,4,5</sup>, Gogolides E<sup>1,5</sup>, Papageorgiou H<sup>3</sup>, Lorusso G<sup>2</sup>

<sup>1</sup>Institute of Nanoscience and Nanotechnology (INN), N.C.S.R. Demokritos, <sup>2</sup>IMEC, <sup>3</sup>Institute for Language and Speech Processing (ILSP), Athena R.C., <sup>4</sup>Physics Department, Aristotle University of Thessaloniki, <sup>5</sup>Nanometrisis P.C., Greece

**18.15 A3-2 Modeling the Resolution Limits of Scanning Electron Microscope Roughness Metrology**

**Mack C**<sup>1</sup>

<sup>1</sup>Fractilia, LLC, USA

**18.30 A3-3 Validation of UV Imprint Process Simulation using a Thermo-viscoelastic Constitutive Model**

**Yamashita R**<sup>1</sup>, Onishi Y<sup>1</sup>, Amaya K<sup>1</sup>, Hirai Y<sup>2</sup>

<sup>1</sup>Tokyo Institute Of Technology, <sup>2</sup>Osaka Prefecture University, Japan

**18.45 A3-4 Modeling, monitoring and future projection of stochastic defects in EUV lithography**

**Fukuda H**<sup>1</sup>

<sup>1</sup>Hitachi High-Technologies Corporation, Japan



TUESDAY SEPTEMBER 24th, 2019

Session B3: Nanofabrication & Nanodevices

18.00-19.00 DELPHI HALL

**18.00 B3-1 Super-resolution fabrication of surface relief structures by contractive scaling of nanoporous monoliths**

**Vainos N<sup>1</sup>**

<sup>1</sup>University of Patras, Dept Materials Science, Greece

**18.15 B3-2 Sub-15 nm multilayer nanopillar patterning for hybrid SET/CMOS integration**

**Pourteau M<sup>1</sup>**, Gharbi A<sup>1</sup>, Brianceau P<sup>1</sup>, Dallery J<sup>2</sup>, Laulagnet F<sup>1</sup>, Rademaker G<sup>1</sup>, Tiron R<sup>1</sup>, von Borany J<sup>3</sup>, Heinig K<sup>3</sup>, Engelmann H<sup>3</sup>, Rommel M<sup>4</sup>, Baier L<sup>4</sup>, Lerch W<sup>5</sup>, Niess J<sup>5</sup>

<sup>1</sup>CEA-LETI, <sup>2</sup>Vistec Electron Beam GmbH, <sup>3</sup>Helmholtz-Zentrum Dresden-Rossendorf, <sup>4</sup>Fraunhofer IISB, <sup>5</sup>HQ Dielectrics GmbH, Germany

**18.30 B3-3 Time-efficient fabrication of Sierpiński-fractal bow-tie nanostructures with a focused helium ion beam and their spectral characterization**

**Laible F<sup>1</sup>**, Seitzl L<sup>1</sup>, Dickreuter S<sup>1</sup>, Kern D<sup>1</sup>, Fleischer M<sup>1</sup>

<sup>1</sup>University of Tübingen Institute for Applied Physics, Germany

**18.45 B3-4 Pathways to laser generated nano patterns for functional surfaces**

**Kling R<sup>1</sup>**

<sup>1</sup>Alphanov, France

Session C3: Flexible & Wearables

18.00-19.00 JUPITER HALL

**18.00 C3-1\_INV Printed flexible electronics for wearable applications**

**Zheng Cui**

Suzhou Institute of Nanotechnology, Chinese Academy of Sciences, China

**18.30 C3-2 Ormocomp-Based Printed Circuit Board Technology for Body-Implantable Applications**

**Scotti G<sup>1</sup>**, Fan S<sup>1</sup>, Chiu Y<sup>1</sup>

<sup>1</sup>National Chiao Tung University, China

**18.45 C3-3 Cell compatibility study of SU-8 microneedles based wearable dry electrodes for electroencephalogram**

Kaklamani G<sup>1</sup>, Stavriniadis G<sup>1</sup>, Michelakis K<sup>3</sup>, Kontomitrou V<sup>1</sup>, Tsagaraki K<sup>1</sup>, Kornilios N<sup>2</sup>, **Konstantinidis G<sup>1</sup>**

<sup>1</sup>Microelectronics Research Group, IESL-FORTH, <sup>2</sup>Greek Mediterranean University, <sup>3</sup>Stewart Blusson Quantum Matter Institute, The University of British Columbia, Canada





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Session D3: Cell & Organ -on-chip I

18.00-19.00 ATHENA HALL

**18.00 D3-1 A method for the multiple direct imaging by TEM, AFM, and SERS of ion channels on plasma membranes suspended on super-hydrophobic surfaces**

**Moretti M<sup>1</sup>**, Limongi T<sup>2</sup>, De Angelis M<sup>3</sup>, Parrotta E<sup>3</sup>, Santamaria G<sup>3</sup>, Allione M<sup>1</sup>, Lopatin S<sup>4</sup>, Torre B<sup>1</sup>, Zhang P<sup>1</sup>, Giugni A<sup>1</sup>, Marini M<sup>2</sup>, Bigo A<sup>5</sup>, Candeloro P<sup>6</sup>, Cuda G<sup>3</sup>, Di Fabrizio E<sup>1</sup>

<sup>1</sup>King Abdullah University of Science and Technology, SMILEs Lab, <sup>2</sup>Dipartimento di Scienza Applicata e Tecnologia, Politecnico di Torino, <sup>3</sup>Laboratory of Stem Cell Biology, Department of Experimental and Clinical Medicine, University Magna Graecia, <sup>4</sup>King Abdullah University of Science and Technology, Imaging and Characterization Core lab,, <sup>5</sup>Dipartimento di Scienze AgroAlimentari, Ambientali e Animali, Università di Udine,, <sup>6</sup>BIONEM lab, Department of Experimental and Clinical Medicine, University Magna Graecia, Italy

**18.15 D3-2 Microwave radars in unlabelled, non-destructive Cell detection**

Secme A<sup>1</sup>, Uslu D<sup>1</sup>, Erdogan T<sup>1</sup>, **Sedaghat Pisheh H<sup>1</sup>**, Hanay M<sup>1,2</sup>

<sup>1</sup>Department of Mechanical Engineering, Bilkent University, <sup>2</sup>National Nanotechnology Research Center (UNAM), Bilkent University, Turkey

**18.30 D3-3 Extracellular matrix protein micropatterning technology for whole cell cryogenic electron microscopy studies**

**Engel L<sup>1</sup>**, Gaeitta G<sup>2</sup>, Dow L<sup>1,3</sup>, Swift M<sup>2</sup>, Pardon G<sup>1</sup>, Volkmann N<sup>2</sup>, Weis W<sup>4</sup>, Hanein D<sup>2</sup>, Pruitt B<sup>1,3</sup>

<sup>1</sup>Department of Bioengineering, Stanford University, <sup>2</sup>Immunity and Pathogenesis Program, Sanford Burnham Prebys Medical Discovery Institute, <sup>3</sup>Departments of Mechanical Engineering and Molecular, Cellular, and Developmental Biology, University of California, Santa Barbara, <sup>4</sup>Departments of Structural Biology and Molecular Cellular Physiology, Stanford University School of Medicine, USA

**18.45 D3-4 Polymer microfluidic chip with integrated thermoformed microcavity array for exposure of 3D cell aggregates to gradients of soluble factors**

**Maurer P<sup>1</sup>**, Sthijns M<sup>1</sup>, King J<sup>1</sup>, Rademakers T<sup>1</sup>, Habibović P<sup>1</sup>, van Blitterswijk C<sup>1</sup>, LaPointe V<sup>1</sup>, Giselbrecht S<sup>1</sup>, Truckenmüller R<sup>1</sup>

<sup>1</sup>MERLN Institute for Technology-Inspired Regenerative Medicine, Maastricht University, The Netherlands



WEDNESDAY SEPTEMBER 25<sup>th</sup>, 2019

Plenary 4

08.45-09.30 JUPITER HALL

**Intelligent and precise flow control for next-generation microfluidic POC diagnostics**

**Emmanuel Delamarche**

*IBM Research Zurich, Switzerland*

Plenary 5

09.30-10.15 JUPITER HALL

**The Revolution of Silicon Photonics**

**Michal Lipson**

*Columbia University, USA*

10.15-10.45

COFFEE BREAK

Session A4: 3D Lithographies

10:45 - 12:00 NEFELI HALL

**10.45 A4-1 Emergent Magnetic Monopoles in a Macroscopically Degenerate 3D Artificial Spin Ice**

**Dhuey S<sup>1</sup>**, Farhan A<sup>2,7</sup>, Petersen C<sup>3</sup>, Saccone M<sup>4</sup>, Kent N<sup>4</sup>, Chopdekar R<sup>2</sup>, Huang Y<sup>5</sup>, Chen Z<sup>5</sup>, Alava M<sup>3</sup>, Lippert T<sup>7,8</sup>, Scholl A<sup>2</sup>, van Dijken S<sup>6</sup>

<sup>1</sup>Molecular Foundry, Lawrence Berkeley National Laboratory, <sup>2</sup>Advanced Light Source, Lawrence Berkeley National Laboratory, <sup>3</sup>COMP Centre of Excellence, Department of Applied Physics, Aalto University, <sup>4</sup>Physics Department, University of California - Santa Cruz, <sup>5</sup>Dept of Materials Science and Engineering, University of California - Berkeley, <sup>6</sup>Nanospin, Dept. of Applied Physics, Aalto University, <sup>7</sup>Lab for Multiscale Materials Experiments, Paul Scherrer Institute, <sup>8</sup>Dept of Chemistry and Applied Biosciences, Lab of Inorganic Chemistry, ETH Zurich, Switzerland

**11.00 A4-2 Fabrication of 3D scaffolds reproducing intestinal epithelium topography by high-resolution 3D stereolithography**

Creff J<sup>1,2</sup>, Courson R<sup>1</sup>, Mangeat T<sup>2</sup>, Foncy J<sup>1</sup>, Souleille S<sup>1</sup>, Thibault C<sup>1</sup>, Besson A<sup>2</sup>, **Malaquin L<sup>1</sup>**

<sup>1</sup>LAAS CNRS, <sup>2</sup>LBCMCP, France

**11.15 A4-3 Novel and versatile prototyping routes for polymeric hybrid and biconvex micro-optics**

**Wolf J<sup>1</sup>**, Grützner S<sup>1</sup>, Ferstl M<sup>2</sup>, Vogler M<sup>1</sup>, Klein J<sup>1</sup>, Voigt A<sup>1</sup>, Thesen M<sup>1</sup>, Kolander A<sup>1</sup>, Guttman M<sup>3</sup>, Nuck M<sup>2</sup>, Schleunitz A<sup>1</sup>, Grützner G<sup>1</sup>

<sup>1</sup>micro resist technology GmbH, <sup>2</sup>Fraunhofer Heinrich Hertz Institute, HHI, <sup>3</sup>Karlsruhe Institute of Technology, Germany

**11.30 A4-4\_INV Laser-based 3D printing at the nanoscale**

**Maria Farsari**

*Foundation for Research & Technology Hellas, Greece*

WEDNESDAY SEPTEMBER 25<sup>th</sup>, 2019

Session B4: Wetting II

10:45- 12:00 DELPHI HALL

**10.45 B1-1\_INV Wettability-Patterned Surfaces for Pumpless Handling of Fluid Microvolumes: Lab-on-Chip and Heat Transfer Applications**

**Constantine Megaridis**

<sup>1</sup>University of Illinois at Chicago

**11.15 B4-2 Towards long-lasting underwater superhydrophobicity of micro-nano textured surfaces: Plastron thickness observation using white light reflectance spectroscopy**

**Smyrnakis A<sup>1</sup>**, Ioannou D<sup>1</sup>, Ellinas K<sup>1</sup>, Gogolides E<sup>1</sup>

<sup>1</sup>Institute of Nanoscience and Nanotechnology, NCSR "Demokritos", Greece

**11.30 B4-3 Biomimetic architectures for entrapping air underwater using wetting materials**

**DAS R<sup>1</sup>**, Arunachalam S<sup>1</sup>, Ahmad Z<sup>1</sup>, Nauruzbayeva J<sup>1</sup>, Mishra H<sup>1</sup>

<sup>1</sup>King Abdullah University of Science and Technology (KAUST), Water Desalination and Reuse Center (WDRC), Saudi Arabia

**11.45 B4-4 Engineering of nanostructured polymer surfaces with enhanced wetting properties**

**Taboryski R<sup>1</sup>**, Mandsberg N<sup>1</sup>, Telecka A<sup>1</sup>, Okulova N<sup>1</sup>, Ludvigsen E<sup>1</sup>

<sup>1</sup>Technical University of Denmark, Denmark

Session C4: Physical Sensors

10.45-12.00 JUPITER HALL

**10.45 C4-1 Suspended intracellular pressure sensor with a reference cavity**

**Arjona M<sup>1,2</sup>**, Sanchez A<sup>1</sup>, Duch M<sup>1</sup>, Gómez-Martínez R, Suárez T<sup>3</sup>, Plaza J<sup>1</sup>

<sup>1</sup>Instituto De Microelectrónica De Barcelona (IMB-CNM CSIC), Spain <sup>2</sup>Departamento de Electrónica y Tecnología de los Computadores, Facultad de Ciencias, Universidad de Granada, <sup>3</sup>Centro de Investigaciones Biológicas (CIB) CSIC, Spain

**11.00 C4-2 Microfabrication of a MEMS accelerometer with two-thick functional layers**

**Garcia I<sup>1</sup>**, Moreira E<sup>1,2</sup>, Dias R<sup>1</sup>, Gaspar J<sup>1</sup>, Alves F<sup>1</sup>, Rocha L<sup>1,2</sup>

<sup>1</sup>INL - International Iberian Nanotechnology Laboratory, <sup>2</sup>CMEMS-UMinho, Spain

**11.15 C4-3 Simple fabrication of highly sensitive capacitive pressure sensors using a porous dielectric layer with cone-shaped patterns**

**Kim Y<sup>1</sup>**, Hwang J<sup>1</sup>, Oh J<sup>1</sup>

<sup>1</sup>Department of Mechanical Engineering, Hanyang University, South Korea

**11.30 C4-4 The effect of cracked alumina substrate on high sensitive Pt nanoparticles strain sensor**

**Aslanidis E<sup>1</sup>**, Patsiouras L<sup>1</sup>, Skotadis E<sup>1</sup>, Giannakopoulos K<sup>2</sup>, Tsoukalas D<sup>1</sup>

<sup>1</sup>National Technical University of Athens, <sup>2</sup>NCSR Demokritos, Greece

**11.45 C4-5 Development of Microscale Magnetic Actuators**

**Cui J<sup>1,2</sup>**, Testa P<sup>1,2</sup>, Weber A<sup>1,2</sup>, Heyderman L<sup>1,2</sup>

<sup>1</sup>Laboratory for Mesoscopic Systems, Department of Materials, ETH Zurich, <sup>2</sup>Laboratory for Multiscale Materials Experiments, Paul Scherrer Institute, Switzerland



WEDNESDAY SEPTEMBER 25<sup>th</sup>, 2019

Session D4: Lab-on a chip Technologies

10.45-12.00 ATHENA HALL

**10.45 D4-1 Lab-on-a-chip device for single-molecule analysis of a cell**

**Marie R**<sup>1</sup>, Pedersen J<sup>1</sup>, Bærlocher L<sup>2</sup>, Koprowska K<sup>3,4</sup>, Pødenphant M<sup>1</sup>, Sabatel C<sup>5</sup>, Zalkovskij M<sup>6</sup>, Mironov A<sup>6</sup>, Bilenberg B<sup>6</sup>, Ashley N<sup>3,4</sup>, Flyvbjerg H<sup>1</sup>, Bodmer W<sup>3,4</sup>, Kristensen A<sup>1</sup>, Mir K<sup>7</sup>

<sup>1</sup>Technical University Of Denmark, Denmark, <sup>2</sup>Fasteris SA, Switzerland, <sup>3</sup>Cancer and Immunogenetics Laboratory, University of Oxford, UK, <sup>4</sup>Department of Oncology, University of Oxford, UK, <sup>5</sup>Diagenode SA, Chile, <sup>6</sup>NIL Technology ApS, Denmark, <sup>7</sup>XGenomes, USA

**11.00 D4-2 Sensitive and rapid PCB-based microfluidic platform for monitoring urinary tract infections**

Filippidou M<sup>1</sup>, Kaprou G<sup>1</sup>, Ntouskas S<sup>1</sup>, **Kokkoris G**<sup>1</sup>, Petrou P<sup>2</sup>, Mastellos D<sup>2</sup>, Chatzandroulis S<sup>1</sup>, Tserepi A<sup>1</sup>

<sup>1</sup>Institute of Nanoscience and Nanotechnology, NCSR "Demokritos", <sup>2</sup>Institute of Nuclear & Radiological Sciences & Technology, Energy & Safety, NCSR "Demokritos", Greece

**11.15 D4-3 Bioanalytical Platforms Based on Combining Microfluidics and Nano-Optical Sensors for Real-Time and Multiplexed Detection of Protein Markers and Molecular Chirality**

**Garcia-guirado J**<sup>1</sup>, Svedendal M<sup>1,2</sup>, Puigdollers J<sup>3</sup>, Yavas O<sup>1</sup>, Acimovic S<sup>1</sup>, Berthelot J<sup>1</sup>, Dobož P<sup>1</sup>, Sanz V<sup>1</sup>, A. Rica R<sup>1,4</sup>, Ortega J<sup>1</sup>, Medina J<sup>1</sup>, Ruiz-Reina E<sup>5</sup>, Quidant R<sup>1,6</sup>

<sup>1</sup>ICFO Institut de Ciències Fotòniques, <sup>2</sup>KTH Royal Institute of Technology, <sup>3</sup>UPC Universitat Politècnica de Catalunya, <sup>4</sup>URG Universidad de Granada, <sup>5</sup>UMA Universidad de Málaga, <sup>6</sup>ICREA Institució Catalana de Recerca i Estudis Avançats, Spain

**11.30 D4-4\_INV Acoustofluidics - A sound approach to liquid biopsies**

**Thomas Laurell**

Lund University, Sweden

12.00-13.00

LUNCH BREAK



WEDNESDAY SEPTEMBER 25<sup>th</sup>, 2019

Session A5: Miscellaneous

13.00- 14:15 NEFELI HALL

**13.00 A5-1 Fabrication of 3D anisotropic dry adhesive microstructures based on 2PP for application in space**

**Busche J**<sup>1</sup>, Starke G<sup>1</sup>, Knickmeier S<sup>1</sup>, Dietzel A<sup>1</sup>

<sup>1</sup>*Institute of Microtechnology, TU Braunschweig, Germany*

**13.15 A5-2 Cleanroom in an SEM: in-situ pattern transfer**

**Jeevanandam G**, van Tol R, van Goozen Y, Kruit P, Hagen C

<sup>1</sup>*Charged Particle Optics group, Dept. Imaging Physics, Delft University Of Technology, the Netherlands*

**13.30 A5-3 Protein Amyloid Fibrils Formation and Growth in Droplet with Confined Convection Flow on Super-hydrophobic Surface**

**Zhang P**<sup>1</sup>, Moretti M<sup>1</sup>, Allione M<sup>1</sup>, Ordonezloza J<sup>2</sup>, Sarathy M<sup>2</sup>, Di Fabrizio E<sup>1</sup>

<sup>1</sup>*SMILEs Lab, Physical Science and Engineering (PSE) and Biological and Environmental Science and Engineering (BESE) Divisions, King Abdullah University Of Science And Technology*, <sup>2</sup>*Clean Combustion Research Center, Physical Science and Engineering (PSE) Division, King Abdullah University of Science and Technology, Saudi Arabia*

**13.45 A5-4 A fully integrated tapered fiber optrode for simultaneous multipoint optical control and electrical readout of neural activity**

**Balena A**<sup>1,2</sup>, Rizzo A<sup>1,2</sup>, Sileo L<sup>1</sup>, Spagnolo B<sup>1</sup>, Pisano F<sup>1</sup>, Pisanello M<sup>1</sup>, De Nuccio F<sup>3</sup>, Lofrumento D<sup>3</sup>, Lemma E<sup>1,2</sup>, Sabatini B<sup>4</sup>, De Vittorio M<sup>1,2</sup>, Pisanello F<sup>1</sup>

<sup>1</sup>*Istituto Italiano Di Tecnologia, Center For Biomolecular Nanotechnologies*, <sup>2</sup>*Department of Innovation Engineering, Università del Salento*, <sup>3</sup>*Lab Human Anatomy and Neuroscience. Department of Biological and Environmental Technologies and Sciences. Università del Salento*, <sup>4</sup>*Department of Neurobiology, Howard Hughes Medical Institute, Harvard Medical School, Italy*

**14.00 A5-5 Grayscale e-beam lithography for the fabrication of 3D microfluidic devices**

**Mortelmans T**<sup>1,2,3</sup>, Kazazis D<sup>1</sup>, Guzenko V<sup>1</sup>, Padeste C<sup>1</sup>, Li X<sup>1</sup>, Braun T<sup>2</sup>, Stahlberg H<sup>2</sup>, Ekinci Y<sup>1</sup>

<sup>1</sup>*Paul Scherrer Institute*, <sup>2</sup>*Center for Cellular Imaging and NanoAnalytics (C-CINA)*, <sup>3</sup>*Swiss Nanoscience Institute, Switzerland*



WEDNESDAY SEPTEMBER 25<sup>th</sup>, 2019

Session B5: Industrial

13.00-14.15 DELPHI HALL

**13.00 B5-1\_INV Patterned Structures and Nanolaminate Hybrid Architectures from Plant-sourced Nanocellulose for Optoelectronics**

**Tekla Tammelin**

*VTT Technical Research Center, Finland*

**13.30 B5-2 Directed Assembly-based Printing of Nano and Microscale Electronics and Sensors**

**Busnaina A<sup>1</sup>**

<sup>1</sup>*Northeastern University, USA*

**13.45 B5-3 Proto-MIP – A Novel Route for MIP Fabrication**

Haas S<sup>1</sup>, **Schranzhofer L**<sup>1</sup>, Roberts B<sup>1</sup>

<sup>1</sup>*Profactor GmbH, Austria*

**14.00 B5-4 Antireflective Moth-Eyes Structures on Freeform Surfaces fabricated by Nanoimprint Lithography**

**Haslinger M**<sup>1</sup>, Moharana A<sup>1</sup>, Fechtig D<sup>1</sup>, Mühlberger M<sup>1</sup>

<sup>1</sup>*Profactor GmbH, Austria*

Session C5: Energy harvesting Devices

13.00-14.15 JUPITER HALL

**13.00 C5-1 Enhanced responsivity of PN junction solar cells through graphene modification layer**

**Feng B**<sup>1</sup>, Wang T, Zhu J, Chen Y

<sup>1</sup>*Fudan University, China*

**13.15 C5-2 Piezoelectric AlN-based fiber-optic devices for sensing and energy harvesting**

**Mariello M**<sup>1,2</sup>, Guido F<sup>2</sup>, Algieri L<sup>3</sup>, Mastronardi V<sup>2</sup>, Rizzi F<sup>2</sup>, Qualtieri A<sup>2</sup>, Pisanello F<sup>2</sup>, De Vittorio M<sup>1,2</sup>

<sup>1</sup>*Dipartimento di Ingegneria dell'Innovazione, Università del Salento*, <sup>2</sup>*Center for Biomolecular Nanotechnologies, Istituto Italiano di Tecnologia*, <sup>3</sup>*Piezoskin S.r.l, Italy*

**13.30 C5-3 Metal Oxide Interlayers for High Performance Inverted Perovskite Solar Cells**

**Choulis S**<sup>1</sup>

<sup>1</sup>*Cyprus University Of Technology, Cyprus*

**13.45 C5-4 Fabrication of electrospun polyimide nanofibers and their application in triboelectric nanogenerators**

**Kim Y**<sup>1</sup>, Wu X<sup>1</sup>, Oh J<sup>1</sup>

<sup>1</sup>*Department of Mechanical Engineering, Hanyang University, South Korea*

**14.00 C5-5 Accordion-shaped gesture sensing and energy harvesting device**

**Ören S**<sup>1</sup>

<sup>1</sup>*Eskisehir Technical University, Turkey*

WEDNESDAY SEPTEMBER 25<sup>th</sup>, 2019

Session D5: Cells & Organ-on-chip II

13.00--14.15 ATHENA HALL

**13.00 D5-1 Influence of 3D microenvironment on cancer cells growth and invasion**

**Sergio S**<sup>1,2</sup>, Coluccia A<sup>2</sup>, Lemma E<sup>3</sup>, Spagnolo B<sup>1</sup>, Vergara D<sup>2,4</sup>, Maffia M<sup>2,4</sup>, De Vittorio M<sup>1,5</sup>, Pisanello F<sup>1</sup>  
<sup>1</sup>*Istituto Italiano di Tecnologia, Center for Biomolecular Nanotechnologies*, <sup>2</sup>*Dipartimento di Scienze e Tecnologie Biologiche e Ambientali, Università del Salento*, <sup>3</sup>*Karlsruher Institut für Technologie, Zoologisches Institut, Abteilung Zell- und Neurobiologie*, <sup>4</sup>*Laboratory of Clinical Proteomic, Giovanni Paolo II Hospital*, <sup>5</sup>*Dipartimento di Ingegneria dell'Innovazione, Università del Salento, Italy*

**13.15 D5-2 Biomimetic aligned nanofibrous PVDF scaffolds for cardiac tissue engineering**

**Kitsara M**<sup>1</sup>, Le C<sup>1</sup>, Simon A<sup>1</sup>, Agbulut O<sup>1</sup>, Hublot V<sup>1</sup>, Revet C<sup>1</sup>, Dufour T<sup>1</sup>  
<sup>1</sup>*Sorbonne Université, Institut de Biologie Paris-Seine, France*

**13.30 D5-3\_INV From Cells-on-Chip to Chips-in-Cell: our fantastic "voyage"**

**Plaza, José Antonio**  
*Instituto de Microelectrónica de Barcelona-CNM, Spain*

**14.00 D5-4 Combination of a biopolymer and UV-casting for production of a peripheral nerve implant containing an internal aligned microchannels array**

**Merino S**<sup>1</sup>, Diez R<sup>1</sup>, Márquez M<sup>1</sup>, Quintana I<sup>1</sup>, Rodríguez F<sup>2</sup>, Haycock J<sup>3</sup>, Glen A<sup>3</sup>, Castro B<sup>4</sup>, González E<sup>4</sup>, Duffy P<sup>5</sup>, Wang W<sup>6</sup>  
<sup>1</sup>*Ik4-Tekniker*, <sup>2</sup>*Hospital Nacional de Paraplégicos, Sapin*, <sup>3</sup>*University of Sheffield, UK*, <sup>4</sup>*Histocell S.L, Spain*, <sup>5</sup>*Ashland Specialties Ireland, Synergy Centre*, <sup>6</sup>*University College Dublin, Charles Institute of Dermatology, Ireland*

14.15-16.15 POSTER SESSION (odd numbers)

Plenary 6

16.15=17.00 JUPITER HALL

**Nanogenerators for self-powered systems and sensors**

**Zhong Lin Wang**  
*Georgia Tech, USA*



WEDNESDAY SEPTEMBER 25<sup>th</sup>, 2019

Session A6: NIL & Novel Lithographies

17.00:- 18.00 NEFELI HALL

**17.00 A6-1 High throughput direct metal oxide nanopatterning by sol-gel soft-NIL in controlled atmosphere, and related applications**

**Grosso D**<sup>1</sup>, Bottein T<sup>1</sup>, Checcucci S<sup>2</sup>, Faustini M<sup>3</sup>, Gurioli M<sup>2</sup>, Favre L<sup>1</sup>, Abbarchi M<sup>1</sup>

<sup>1</sup>Im2np / Aix Marseille University, <sup>2</sup>European Laboratory for Nonlinear Spectroscopy (LENS), <sup>3</sup>Laboratoire de Chimie de la Matière Condensée de Paris - LCMCP Sorbonne Université,,France

**17.15 A6-2 Sub-micron silver wires on non-flat polymer substrates fabricated by thermal imprint and back injection molding**

Schift H<sup>1</sup>, **Xie S**<sup>1</sup>, Horváth B<sup>1</sup>, Werder J<sup>2</sup>

<sup>1</sup>Paul Scherrer Institut (PSI), <sup>2</sup>FHNW University of Applied Sciences and Arts Northwestern Switzerland

**17.30 A6-3 Hydrogen Depassivation Lithography Exposure Physics**

**Randall J**<sup>1</sup>, Owen J<sup>1</sup>, Fuchs E<sup>1</sup>, Schantz M<sup>1</sup>, Santini R<sup>1</sup>, Delgado C<sup>1</sup>, Lake J<sup>1</sup>

<sup>1</sup>Zyvex Labs, USA

**17.45 A6-4 Hard mask nanopatterns integrated into semiconductor manufacturing: A facile block copolymer methodology**

**Ghoshal T**<sup>1</sup>, Morris M<sup>1</sup>

<sup>1</sup>Surface And Interface Chemistry, Department Of Chemistry, AMBER And CRANN, Trinity College Dublin, Dublin, Ireland

Session B6: Nanofab for Bioapplications

17.00- 18.00 DELPHI HALL

**17.00 B6-1 Direct Photoreduction of Gold Nanoparticles on SU-8 nanostructures**

Chen Y<sup>1</sup>, Chang W<sup>2</sup>, **Lin C**<sup>1</sup>

<sup>1</sup>National Cheng Kung University, <sup>2</sup>National Pingtung University Taiwan

**17.15 B6-2 Micro- and nanostructures for ultrasoft neural interfaces**

**Osmani B**<sup>1</sup>, Töpper T<sup>1</sup>, Schift H<sup>2</sup>, Guzman R<sup>3</sup>, Kristiansen M<sup>4</sup>, Crockett R<sup>5</sup>, Müller B<sup>1</sup>

<sup>1</sup>Biomaterials Science Center, Department of Biomedical Engineering, University of Basel, <sup>2</sup>Laboratory for Micro- and Nanotechnology, Paul Scherrer Institute, <sup>3</sup>Department of Neurosurgery, University Hospital Basel, <sup>4</sup>Institute of Polymer Nanotechnology, FHNW University of Applied Sciences and Arts Northwestern Switzerland, <sup>5</sup>Coating Competence Center, Empa, Switzerland

**17.30 B6-3 BioBots: Light-controlled microtools for biological applications**

**Bunea A**<sup>1</sup>, Engay E<sup>2</sup>, Wetzel A<sup>1</sup>, Taboryski R<sup>1</sup>

<sup>1</sup>DTU Nanolab, <sup>2</sup>DTU Fotonik, Denmark

**17.45 B6-4 Fabrication Methodology for Personalised Biodegradable Microneedle Array**

**Wu L**<sup>1</sup>, Takama N<sup>1</sup>, Kim B<sup>1</sup>

<sup>1</sup>Institute of Industrial Science, The University of Tokyo, Japan



**WEDNESDAY SEPTEMBER 25<sup>th</sup>, 2019**  
**Session C6: Photonic Structures**

**17.00-18.00 JUPITER HALL**

**17.00 C6-1 Stretchable plasmonic rulers: Reversibly tuning the coupling strength of individual plasmonic nano-bowties on flexible substrates**

Laible F<sup>1,2</sup>, Gollmer D<sup>1,2</sup>, Dickreuter S<sup>1,2</sup>, Kern D<sup>1,2</sup>, **Fleischer M<sup>1,2</sup>**

<sup>1</sup>Institute for Applied Physics, University of Tuebingen, <sup>2</sup>Center LISA+, University of Tuebingen, Germany

**17.15 C6-2 Enhancement of Photodetection Performance of Graphene by Photoreceptor Protein**

Tong J<sup>1,2</sup>, Wang Y<sup>3,4</sup>, Wang Y<sup>1</sup>, **Li T<sup>1</sup>**

<sup>1</sup>SIMIT, CAS, <sup>2</sup>UCAS, <sup>3</sup>Beijing Institute of Lifeomics, <sup>4</sup>NERCPD, China

**17.30 C6-3 Micro-lens array superpositions for level-line moirés**

**Walger T<sup>1</sup>**, Hersch R<sup>2</sup>, Brugger J<sup>1</sup>

<sup>1</sup>Microsystems Laboratory - Epfl, <sup>2</sup>School of Computer and Communication Sciences – EPFL, Switzerland

**17.45 C6-4 Nonplanar nanostructuring of tapered optical fibers for plasmonic neural interfaces**

**Pisano F<sup>1</sup>**, Balena A<sup>1,2</sup>, Grande M<sup>3</sup>, Pisanello M<sup>1</sup>, Stomeo T<sup>1</sup>, Quattieri A<sup>1</sup>, Bianco M<sup>1,2</sup>, Sileo L<sup>1</sup>, D'Orazio A<sup>3</sup>, De Vittorio M<sup>1,2</sup>, Pisanello F<sup>1</sup>

<sup>1</sup>Fondazione Istituto Italiano Di Tecnologia-CBN, <sup>2</sup>Dipartimento di Ingegneria dell'Innovazione, Università del Salento, <sup>3</sup>Dipartimento di Ingegneria Elettrica e dell'Informazione, Politecnico di Bari, Italy

**Session D6 Industrial**

**17.00-18.00 ATHENA HALL**

**17.00 D6-1 Label-free imaging platform for rapid analysis of biomarkers**

**Dümpelmann L<sup>1</sup>**, Terborg R<sup>1</sup>, Pello J<sup>1</sup>, Mannelli I<sup>1</sup>, Yesilkoy F<sup>2</sup>, Belushkin A<sup>2</sup>, Jahani Y<sup>2</sup>, Fabri-Faja N<sup>3</sup>, Dey P<sup>3</sup>, Calvo-Lozano O<sup>3</sup>, Estevez M<sup>3</sup>, Fàbrega A<sup>4</sup>, González-López J<sup>4</sup>, Lechuga L<sup>3</sup>, Altug H<sup>2</sup>, Pruneri V<sup>1</sup>

<sup>1</sup>ICFO - Institut de Ciències Fotòniques, <sup>2</sup>EPFL - École Polytechnique Fédérale de Lausanne, <sup>3</sup>ICN2 – Institute of Nanoscience and Nanotechnology, <sup>4</sup>Hospital Universitari Vall d'Hebron, Switzerland

**17.15 D6-2 A sensitive Lab-on-a-chip for pathogen detection using a simple colour-change DNA amplification reaction**

Kaprou G<sup>1</sup>, **Tsougeni K<sup>1,2</sup>**, Kastania A<sup>2</sup>, Loukas C<sup>1</sup>, Smyrnakis A<sup>1</sup>, Ellinas K<sup>1,2</sup>, Gogolides E<sup>1,2</sup>, Tserepi A<sup>1,2</sup>

<sup>1</sup>NCSR Demokritos, <sup>2</sup>Nanoplasmas P.C., Greece

**17.30 D6-3 Dimple structure to enable highly accurate microdroplet manipulation**

**Mogi K<sup>1</sup>**, Adachi S<sup>1</sup>, Takada N<sup>2</sup>, Inoue T<sup>2</sup>, Natsume T<sup>1</sup>

<sup>1</sup>Molecular Profiling Research Center For Drug Discovery, National Institute Of Advanced Industrial Science And Technology, <sup>2</sup>Research Center for Ubiquitous MEMS and Micro Engineering, National Institute of Advanced Industrial Science and Technology, Japan

**17.45 D6-4 Platform for High Throughput manufacturing of Microfluidic Devices**

**Smolka M<sup>1</sup>**, Haase A<sup>1</sup>, Ruttloff S<sup>1</sup>, Götz J<sup>1</sup>, Tören P<sup>1</sup>, Rumpler M<sup>2</sup>, Stadlober B<sup>1</sup>, Hesse J<sup>1</sup>, Geidel S<sup>2</sup>, Nestler J<sup>2</sup>, Katzmayer I<sup>3</sup>, Sonnleitner M<sup>3</sup>, Hemanth S<sup>4</sup>, Kafka J<sup>4</sup>, Ramos I<sup>5</sup>, Lohse M<sup>6</sup>, Thesen M<sup>6</sup>, Kokkinis G<sup>7</sup>, Kriechhammer G<sup>7</sup>, Horn M<sup>8</sup>, Weigel W<sup>8</sup>, Briz Iceta N<sup>9</sup>, Bijelic G<sup>9</sup>

<sup>1</sup>JOANNEUM RESEARCH - MATERIALS Institute, <sup>2</sup>JOANNEUM RESEARCH - HEALTH Institute, <sup>3</sup>Biflow Systems GmbH, <sup>4</sup>GENSPEED Biotech GmbH, <sup>5</sup>Inmold A/S, <sup>6</sup>Innoprot, <sup>7</sup>micro resist technology GmbH, <sup>8</sup>Pessl Instruments GmbH, <sup>9</sup>Scienion AG, <sup>10</sup>Tecnia Research and Innovation, Germany

THURSDAY SEPTEMBER 26<sup>th</sup>, 2019

Plenary 7

08.45-09.30 JUPITER HALL

MNE Fellow Award & Lecture  
Hella-Christin Scheer

Young Investigator Award

09.30-10.00 JUPITER HALL

Young Investigator Award Invited Lecture  
Yuksel Temiz

*Ibm Research, Zurich, Switzerland*

Award Ceremony

10.00-10.15 JUPITER HALL

10.15-10.45

COFFEE BREAK

Session A7: Electron and Ion Beam Lithography

10.45 – 12.00 NEFELI HALL

10.45 A7-1 A single integrated fiberoptrode for optogenetic stimulation and electrical recording of neural activity

**Spagnolo B**<sup>1</sup>, Sileo L, Peixoto R, Pisanello M, Pisano F, Maglie E, Sabatini B, De Vittorio M, Pisanello F  
<sup>1</sup>*Istituto Italiano di Teconologia, Center for Biomolecular Nanotechnologies, Italy*

11.00 A7-2 Cs and Rb Ion Coldbeam Suitability for Circuit Edit

**Greenzweig Y**<sup>1</sup>, Livengood R<sup>2</sup>, Hallstein R<sup>2</sup>, Drezner Y<sup>1</sup>, Ly M<sup>2</sup>, Tan S<sup>2</sup>, Raveh A<sup>1</sup>  
<sup>1</sup>*Intel Israel*, <sup>2</sup>*Intel Corporation, Isreal*

11.15 A7-3 The Marriage of the Ions and Chemistry to Fulfill Semiconductor devices Preparation

**Goupil G**<sup>1</sup>, Gounet P<sup>2</sup>, Hollerth C<sup>3</sup>, Altmann F<sup>4</sup>, Brand S<sup>4</sup>, Delobbe A<sup>1</sup>  
<sup>1</sup>*Orsay Physics*, <sup>2</sup>*ST Microelectronics*, <sup>3</sup>*Infineon Technologies*, <sup>4</sup>*Fraunhofer IMWS, Germany*

11.30 A7-4 Excitation power density dependence of photocurrent from InGaN photocathode

**Sato D**<sup>1,2</sup>, Nishitani T<sup>2,3</sup>, Koizumi A<sup>2</sup>, Honda Y<sup>3</sup>, Amano H<sup>3</sup>  
<sup>1</sup> *Department of Electronics, Nagoya University*, <sup>2</sup>*Photo electron Soul Inc.*, <sup>3</sup>*Center for Integrated Research of Future Electronics, Institute of Materials and Systems for Sustainability, Nagoya University, Japan*

11.45 A7-5 Nanofabrication and imaging characterization of 30 nm resolution charts with vertical sidewalls

**Zhu J**<sup>1</sup>, Zhang S<sup>1</sup>, Xie S<sup>1</sup>, Chen Y<sup>1</sup>, Deng B<sup>2</sup>, Zhang L<sup>2</sup>  
<sup>1</sup>*Nanolithography and Application Research Group, State key lab of ASIC and*, <sup>2</sup>*Shanghai Synchrotron Radiation Facility, Shanghai Institute of Applied Physics, China*



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Session B7: Nanostructures for Photonics

10.45- 12.00 DELPHI HALL

**10.45 B7-1 Optofluidic waveguide using oil-impregnated nanoporous surfaces as cladding layers**

Asawa K<sup>1</sup>, Kumar S<sup>1</sup>, Huang Y<sup>1</sup>, Choi C<sup>1</sup>

<sup>1</sup>Stevens Institute of Technology, USA

**11.00 B7-2 Fabrication of Vivid, Wide Area Transmission Holograms in Plastic Substrates using Nanoimprint Lithography**

Morton K<sup>1</sup>

<sup>1</sup>National Research Council Canada

**11.15 B7-3\_INV Biomimetics of photosynthetic photonic structures. How natural light harvesting could become an inspiration for nanotechnology**

**Martin Lopez**

International Iberian Nanotechnology Laboratory-INL, Portugal

**11.45 B7-4 Three-dimensional silicon nanostructures for photonic applications**

Chang B<sup>1</sup>, Jensen F, Hübner J, Jansen H

<sup>1</sup>Technical University of Denmark

Session 7C: Materials & Devices for nanoelectronics

10.45-12.00 JUPITER HALL

**10.45 7C-1\_INV Merging Computing and Sensing for Low power and Sustainable Edge Applications**

**Thomas Ernst**

CEA-LETI, Grenoble, France

**11.15 7C-2 Vertical field-effect transistors based on 3D GaN nanostructure arrays**

Stremmel K<sup>1,2</sup>, Yu F<sup>1,2</sup>, Spende H<sup>1,2</sup>, Hartmann J<sup>1,2</sup>, Römer F<sup>3</sup>, Witzigmann B<sup>3</sup>, Bakin A<sup>1,2</sup>, Wehmann H<sup>1,2</sup>, Wasisto H<sup>1,2</sup>, Waag A<sup>1,2</sup>

<sup>1</sup>Institute Of Semiconductor Technology (IHT), TU Braunschweig, <sup>2</sup>Laboratory of Emerging Nanometrology (LENA), TU Braunschweig, <sup>3</sup>Computational Electronics and Photonics (CEP), Kassel University, Germany

**11.30 7C-3 Design and simulation of planar nano vacuum channel transistors (pNVCT)**

Turchetti M<sup>1</sup>, Keathley P<sup>1</sup>, Yang Y<sup>1</sup>, Nardi A<sup>1</sup>, Daniel L<sup>1</sup>, Berggren K<sup>1</sup>

<sup>1</sup>Massachusetts Institute of Technology, USA

**11.45 7C-4 Integration of 2D MoS2 with InAlAs/InGaAs heterojunction for dual color detection in both visible and near-infrared band**

Deng J<sup>1</sup>, Zhu M<sup>1</sup>, Xie Y<sup>1</sup>, Zong L<sup>1</sup>, Bao W<sup>1</sup>, Chen Y<sup>1</sup>

<sup>1</sup>Fudan University, China



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Session D7: Micro & Nano Fluidics

10.45-12.00 ATHENA HALL

**10.45 D7-1 3D coaxial liquid injection and extraction system by 2-photon-polymerization**

**Erfle P<sup>1</sup>**, Dietzel A<sup>1</sup>

<sup>1</sup>*Technische Universität Carolo-wilhelmina Zu Braunschweig, Germany*

**11.00 D7-2 Fabrication of a  $\mu$ -fluidic device by two-photon lithography using a positive tone resist**

**Van Der Velden G<sup>1</sup>**

<sup>1</sup>*Delft University of Technology, The Netherlands*

**11.15 D7-3 A Precise, Low-Power, Electrokinetically Actuated Micropumping Mechanism**

**Eden A<sup>1</sup>**, Lorestani F<sup>1</sup>, MacKenzie S<sup>1</sup>, Minne S<sup>1</sup>, Huber D<sup>1</sup>, Meinhart C<sup>1</sup>, Pennathur S<sup>1</sup>

<sup>1</sup>*University of California, Santa Barbara, USA*

**11.30 D7-4\_INV Design and Fabrication of Plastic Nanofluidic Devices for Single Molecule Detection**

**Sungook Park**

*Louisiana State University, USA*

12.00-13.00

LUNCH BREAK

Session A8: Industrial I

13.00- 14:00 NEFELI HALL

**13.00 A8-1\_INV The path to Roll to Roll Imprint Technology, an Enabling Technology**

**John Maltabes**

*Applied Materials, Germany*

**13.30 A8-2 Flexpol: Developing a bactericide adhesive film**

**Kehagias N<sup>1</sup>**

<sup>1</sup>*Catalan Institute Of Nanoscience and Nanotechnology, Spain*

**13.45 A8-3 Full-Scale Manufacturing of 200mm/300mm Wafers on a Fully Integrated Nanoimprint Lithography System**

**Wiesbauer H<sup>1</sup>**, Chouiki M<sup>1</sup>, Thanner C<sup>1</sup>, Berger G<sup>1</sup>, Martens S<sup>2</sup>, Treiblmayr D<sup>1</sup>, Hartbaum J<sup>2</sup>, Eibelhuber M<sup>1</sup>

<sup>1</sup>*EVGroup*, <sup>2</sup>*Institut für Mikroelektronik Stuttgart (IMS CHIPS), Germany*

THURSDAY SEPTEMBER 26<sup>th</sup>, 2019  
Session B8: Wetting III

13.00- 14.00 DELPHI HALL

**13.00 B8-1 A scalable process for manufacturing hierarchical superhydrophobic structures on aluminium: promotion of stable dropwise condensation for tropical air conditioning**

Kadala K<sup>1</sup>, Chung S<sup>1</sup>  
<sup>1</sup>UC Berkeley, USA

**13.15 B8-2 Designing Surfaces for Under-Liquid Super-Repellency**

Zhu P<sup>1,2</sup>, Wang L<sup>1,2</sup>

<sup>1</sup>The University Of Hong Kong, <sup>2</sup>HKU-Zhejiang Institute of Research and Innovation (HKU-ZIRI), Hong Kong

**13.30 B8-3 Superhydrophobic and superoleophobic properties enhancement on PDMS microstructure using simple flame treatment method**

Atthi N<sup>1</sup>, Janseng T<sup>2</sup>, Maneesong A<sup>2</sup>, Kongto N<sup>2</sup>, Sripumkhai W<sup>1</sup>, Pattamang P<sup>1</sup>, Thongsook O<sup>1</sup>, Suntalelat S<sup>1</sup>, Jantawong J<sup>1</sup>, Rodchanarowan A<sup>2</sup>, Klunngien N<sup>1</sup>, Jeamsaksiri W<sup>1</sup>

<sup>1</sup>Thai Microelectronics Center (TMEC), National Electronics and Computer Technology Center (NECTEC), <sup>2</sup>Department of Materials Engineering, Faculty of Engineering, Kasetsart University, Thailand

**13.45 B8-4 Design, fabrication and characterisation strategies for large area bactericidal polymer films**

Francone A<sup>1</sup>, Retolaza A<sup>2</sup>, Ramiro J<sup>2</sup>, Merino S<sup>2</sup>, Vieira De Castro J<sup>3</sup>, Neves N<sup>3</sup>, Arana A<sup>4</sup>, Marimon J<sup>4</sup>, Sotomayor Torres C<sup>1,5</sup>, Kehagias N<sup>1</sup>

<sup>1</sup>ICN2 - Catalan Institute of Nanoscience and Nanotechnology, <sup>2</sup>IK4-Tekniker, <sup>3</sup>Research Institute of Biomaterials, Biodegradables and Biomimetics, <sup>4</sup>University Hospital-Biodonostia Health Research Institute, <sup>5</sup>Institutio Catalana de Recerca i Estudis Avancats (ICREA), Spain

Session C8: Materials for Nanoelectronics II

13.00-14.00 JUPITER HALL

**13.00 C8-1 Suitability of HSQ as fabrication material for vertical devices at nano-scale**

Amat E<sup>1</sup>, del Moral A<sup>1</sup>, Engelmann H<sup>2</sup>, Garbi A<sup>3</sup>, Rademaker G<sup>3</sup>, Porteau M<sup>3</sup>, Tiron R<sup>3</sup>, Bausells J<sup>1</sup>, Perez-Murano F<sup>1</sup>

<sup>1</sup>Institute of Microelectronics of Barcelona, <sup>2</sup>Helmholtz-Zentrum Dresden-Rossendorf, <sup>3</sup>CEA-LETI

**13.15 C8-2 Memristive behaviour of electrodeposited thermoelectric materials**

Mihailovic I<sup>1</sup>, Klösel K<sup>1</sup>, Hierold C<sup>1</sup>

<sup>1</sup>Micro and Nanosystems, ETH Zürich, Switzerland

**13.30 C8-3 Electrostatically-coupled dopant atom quantum dot transistor measurement at room-temperature**

Abualnaja F<sup>1</sup>, Wang C<sup>1</sup>, Veigang-Radulescu V<sup>1</sup>, Griffiths J<sup>2</sup>, Andreev A<sup>3</sup>, Jones M<sup>1</sup>, Durrani Z<sup>1</sup>

<sup>1</sup>Imperial College London, <sup>2</sup>University of Cambridge, <sup>3</sup>Hitachi Cambridge, UK

**13.45 C8-4 Sputtered ZnO nanostructure homojunctions fabricated on room temperature pre-patterned substrates**

Deligeorgis G<sup>1</sup>, Kampylafka V<sup>2</sup>, Kostopoulos A<sup>3</sup>, Modreanu M<sup>4</sup>, Schmidt M<sup>5</sup>, Gagaoudakis E<sup>6</sup>, Tsagaraki K<sup>7</sup>, Kontomitrou V<sup>8</sup>, Konstantinidis G<sup>9</sup>, Kiriakidis G<sup>10</sup>, Aperathitis E<sup>11</sup>

<sup>1</sup>Forth/iesl, <sup>2</sup>FORTH/IESL, <sup>3</sup>FORTH/IESL, <sup>4</sup>Tyndall National Institute, <sup>5</sup>Tyndall national Institute, Iceland <sup>6</sup>FORTH/IESL, <sup>7</sup>FORTH/IESL, <sup>8</sup>FORTH/IESL, <sup>9</sup>FORTH/IESL, <sup>10</sup>FORTH/IESL, <sup>11</sup>FORTH/IESL, Greece

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Session D8: Devices for DNA studies

13.00-14.00 ATHENA HALL

**13.00 D8-1 Ultrafast Phage-Long DNA Size Profiling Using Optonofluidic Device**

Chou C<sup>1</sup>, Yeh J<sup>1</sup>, Lin Y<sup>1,2</sup>, Sriram K<sup>1,2</sup>

<sup>1</sup>Institute of Physics, Academia Sinica, <sup>2</sup>Chemical Biology Division, Chalmers University of Technology, Sweden

**13.15 D8-2 Nanomechanical DNA resonator for DNA structural alterations studies**

Marini M<sup>1,2</sup>, Stassi S<sup>1</sup>, Allione M<sup>2</sup>, Lopatin S<sup>3</sup>, Marson D<sup>4</sup>, Laurini E<sup>4</sup>, Pricl S<sup>4</sup>, Torre B<sup>2</sup>, Giugni A<sup>2</sup>, Moretti M<sup>2</sup>, Zhang P<sup>2</sup>, Pirri C<sup>1</sup>, Ricciardi C<sup>1</sup>, Di Fabrizio E<sup>2</sup>

<sup>1</sup>DISAT, Polytechnic of Turin, <sup>2</sup>SMILEs Lab, KAUST, <sup>3</sup>Imaging and Characterization Core Lab, KAUST, <sup>4</sup>DEA, University of Trieste

**13.30 D8-3 Controlling DNA translocation in nanofluidic devices using topography**

Esmek F<sup>1</sup>, Fernandez-cuesta I<sup>1</sup>

<sup>1</sup>Hamburg University, Germany

**13.45 D8-4 Electrokinetic Scanning Probe for Localized Surface Patterning and Analysis**

Ostromohov N<sup>1,2</sup>, Bercovici M<sup>1</sup>, Kaigala G<sup>2</sup>

<sup>1</sup>Technion-Israel Institute of Technology, <sup>2</sup>IBM Research – Zurich, Switzerland

14.00-14.30

COFFEE BREAK

Session A9: Industrial II

14.30-15.30 NEFELI HALL

**14.30 A9-1 All integrated mix & match direct-write nano- and microlithography platform based on local heat induced sublimation of polyphthalaldehyde resist**

Holzner F<sup>1</sup>, Jehle A<sup>2</sup>, Peter D<sup>2</sup>, Bisig S<sup>1</sup>, Bonanni S<sup>1</sup>, Paul P<sup>2</sup>, Duerig U<sup>1</sup>

<sup>1</sup>Swisslitho AG, Switzerland, <sup>2</sup>Heidelberg Instruments, Germany

**14.45 A9-2 Advanced FIB Patterning Strategies for Photonic Devices**

Nadzeyka A<sup>1</sup>, Richter T<sup>1</sup>, Kahl M<sup>1</sup>, Nouvertné F<sup>1</sup>

<sup>1</sup>Raith GmbH, Germany

**15.00 A9-3 New high etch resistant high resolution silsesquioxane based resist for DUV/EUV and e-beam lithography as long shelf-life and more sensitive alternative for HSQ**

Grüneberger F<sup>1</sup>, Gerngroß M<sup>1</sup>, Schirmer M<sup>1</sup>, Heyroth F<sup>2</sup>, Schmidt G<sup>2</sup>, Pyka N<sup>3</sup>, Hahn L<sup>4</sup>

<sup>1</sup>Allresist GmbH, <sup>2</sup>Institut für Physik, Martin-Luther-Universität Halle-Wittenberg, Germany, <sup>3</sup>Raith GmbH, <sup>4</sup>Institute of Microstructure, Karlsruhe Institute of Technology, Germany

**15.15 A9-4 Multiscale Position Correction for Automated Device-scale STM Lithography**

Owen J<sup>1</sup>, Lake J<sup>1</sup>, Fuchs E<sup>1</sup>, Santini R<sup>1</sup>, Randall J<sup>1</sup>

<sup>1</sup>Zyvex Labs, USA

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Session B9: Nanofabrication

14.30- 15.30 DELPHI HALL

**14.30 B9-1 Materials characterization of gas assisted etch and deposition of focused Cs<sup>+</sup> ion beam**

Drezner Y<sup>1</sup>, Greenzweig Y<sup>1</sup>, Hallstein R<sup>2</sup>, Livengood R<sup>2</sup>, Raveh A<sup>1</sup>, Steele A<sup>3</sup>, Knuffman B<sup>3</sup>, Schwarzkopf A<sup>3</sup>

<sup>1</sup>Intel Israel, <sup>2</sup>Intel Corporation, <sup>3</sup>zeroK Nanotech, USA

**14.45 B9-2 Lithium-Doping of ZnO: is it possible to chemically produce p-type ZnO?**

Papagergiou G<sup>1</sup>, Psycharis V<sup>1</sup>, Katsikini M<sup>2</sup>, Pinakidou F<sup>2</sup>, Paloura E<sup>2</sup>, Makarona E<sup>1</sup>

<sup>1</sup>Institute Of Nanoscience and Nanotechnology, NCSR Demokritos, Greece, <sup>2</sup>School of Physics, Aristotle University of Thessaloniki, Greece

**15.00 B9-3 Development of van der Waals force based microscale joint for microscale assembly**

Jang K<sup>1</sup>, Kim M<sup>2</sup>, Im J<sup>1</sup>, Ahn S<sup>1,3</sup>

<sup>1</sup>Department of Mechanical and Aerospace Engineering, Seoul National University, <sup>2</sup>Soft Robotics Research Center, Seoul National University, <sup>3</sup>Institute of Advanced Machines and Design, Seoul National University, South Korea

**15.15 B9-4 Electrically controlled modification of polymer film structure of semiconductor – insulator composites casted by horizontal-dipping**

Awsuik K<sup>1</sup>, Rysz J<sup>1</sup>, Marzec M<sup>2</sup>, Dąbczyński P<sup>1</sup>, Budkowski A<sup>1</sup>

<sup>1</sup>M. Smoluchowski Institute Of Physics, Jagiellonian University, Łojasiewicza 11, 30-348 Kraków, Poland, <sup>2</sup>Academic Centre for Materials and Nanotechnology, AGH University of Science and Technology, Poland

Session C9: Materials for photonics

14.30-15.30 JUPITER HALL

**14.30 C9-1 Tuning Fluorophores Concentration and Their Residence Time in Zero-Mode Waveguides**

Barbaglia A<sup>1,2</sup>, Dipalo M<sup>1</sup>, Tantussi F<sup>1</sup>, Toma A<sup>1</sup>, De Angelis F<sup>1</sup>

<sup>1</sup>Istituto Italiano di Tecnologia, <sup>2</sup>Dipartimento di Fisica, Università degli Studi di Genova, Italy

**14.45 C9-2 Very High Refractive Index Transition Metal Dichalcogenide Photonic Conformal Coatings by Conversion of ALD Metal Oxides**

Schwartzberg A<sup>1</sup>, Chen C<sup>1</sup>, Pedrini J<sup>1</sup>, Gaulding A<sup>1</sup>, Kastl C<sup>1</sup>, Dhuey S<sup>1</sup>, Kuykendall T<sup>1</sup>, Calafiore G<sup>1</sup>, Toma F<sup>1</sup>, Cabrini S<sup>1</sup>, Aloni S<sup>1</sup>

<sup>1</sup>The Molecular Foundry, Lawrence Berkeley National Labs, USA

**15.00 C9-3 Fabrication and novel applications of GaN-based microLED arrays**

Gülink J<sup>1,2</sup>, Fahrbach M<sup>1,2</sup>, Spende H<sup>1,2</sup>, Stempel K<sup>1,2</sup>, Granz T<sup>1,2</sup>, Zaidi S<sup>1</sup>, Wasisto H<sup>1,2</sup>, Waag A<sup>1,2</sup>

<sup>1</sup>Institute of Semiconductor Technology (IHT), TU Braunschweig, <sup>2</sup>Laboratory for Emerging Nanometrology (LENA), TU Braunschweig, Germany

**15.15 C9-4 Magnetic Dipole Resonance Induced Visible Luminescence from Hundred Nanometers of Silicon Particles**

Chang S<sup>1</sup>, Tseng Y<sup>2</sup>, Lee Y<sup>3</sup>, Chen H<sup>4</sup>

<sup>1</sup>Nation Taiwan University, <sup>2</sup>Nation Taiwan University, <sup>3</sup>Nation Taiwan University, <sup>4</sup>Nation Taiwan University

THURSDAY SEPTEMBER 26<sup>th</sup>, 2019  
Session D9: Lab & Organ on-chip

14.30-15.30 ATHENA HALL

**14.30 D9-1 A Novel Micro Free-Flow Electrophoresis 3D printed Lab on a Chip for exosomes separation**

**Barbaresco F<sup>1</sup>**, Cocuzza M<sup>1,2</sup>, Pirri F<sup>1</sup>, Marasso S<sup>1,2</sup>  
<sup>1</sup>Politecnico Di Torino, <sup>2</sup>CNR-IMEM, Italy

**14.45 D9-2 Loading of biodegradable microcontainers with budesonide for local treatment of inflammatory bowel disease**

**Abid Z<sup>1,2</sup>**, Andreoli F<sup>1,2</sup>, Kristensen M<sup>1,3</sup>, Petersen R<sup>1,2</sup>, Müllertz A<sup>1,3</sup>, Boisen A<sup>1,4</sup>, Keller S<sup>1,2</sup>  
<sup>1</sup>The Danish National Research Foundation and Villum Foundation's Center for Intelligent Drug Delivery and Sensing Using Microcontainers and Nanomechanics (IDUN), <sup>2</sup>National Centre for Nano Fabrication and Characterization, DTU Nanolab, Technical University of Denmark, <sup>3</sup>Department of Pharmacy, Faculty of Health and Medical Sciences, University of Copenhagen, <sup>4</sup>Department of Health Technology, DTU Health Tech, Technical University of Denmark

**15.00 D9-3 Lensless imaging strategies for micro-particles and bacterial colonies counting**

Maire A<sup>1,3</sup>, **Yescas Gonzalez T<sup>1</sup>**, Lecarme O<sup>2</sup>, Zelsmann M<sup>1</sup>, Picard E<sup>3</sup>, Marcoux P<sup>4</sup>, Peyrade D<sup>1</sup>  
<sup>1</sup>Univ. Grenoble Alpes, CNRS, LTM, <sup>2</sup>Smart Force Technologies, c/o LTM-CNRS CEA/LETI, <sup>3</sup>Univ. Grenoble Alpes, CEA, INAC, PHELIQS, SINAPS, <sup>4</sup>Univ. Grenoble Alpes, CEA, LETI, DTBS, SBSC, LCMI/LBAM

**15.15 D9-4 3D structuration of porous PDMS by emulsion templating for the fabrication of cell culture scaffolds**

**Riesco R<sup>1,2</sup>**, Boyer L<sup>1</sup>, Blossse S<sup>1,2</sup>, Lefebvre P<sup>3</sup>, Assemat P<sup>3</sup>, Leichle T<sup>1</sup>, Accardo A<sup>1</sup>, Malaquin L<sup>1</sup>  
<sup>1</sup>LAAS-CNRS, <sup>2</sup>INSA, <sup>3</sup>IMFT, France

Session A10: Resists

15.45 – 16.45 NEFELI HALL

**15.45 A10-1 Evaluation of RE-650 as a positive tone resist for electron beam lithography with high plasma etch durability**

**Zhu M<sup>1</sup>**, Yu M<sup>2</sup>, Deng J<sup>1</sup>, Xie Y<sup>1</sup>, Chen Y<sup>1</sup>  
<sup>1</sup>Nanolithography and application research group, School of Information Science and Technology, FUDAN, <sup>2</sup>Han-Top Photo-materials Co. Ltd, Bu Kang Group, China

**16.00 A10-2 Environmentally friendly nanofabrication with cellulose and water**

Dore C<sup>1</sup>, **Osmond J<sup>2</sup>**, Mihi A<sup>1</sup>  
<sup>1</sup>ICFO-The Institute of Photonic Sciences, <sup>2</sup>Institut de Ciència de Materials de Barcelona, Spain

**16.15 A10-3 In-situ monitoring of development step of high-resolution e-beam resists**

**Mpatzaka T<sup>1</sup>**, Zisis G<sup>1,2</sup>, Papageorgiou G<sup>2</sup>, Goustouridis D<sup>1,3</sup>, Raptis I<sup>1,2</sup>  
<sup>1</sup>ThetaMetrisis SA, <sup>2</sup>INN, NCSR 'Demokritos', <sup>3</sup>Dept. Electrical & Electronics Eng., University of West Attica, Greece

**16.30 A10-4 Synthesis and Photolithographic Characterization of Phenolic Molecular Resists under Electron-beam and Extreme UV Irradiation**

**Lee J<sup>1</sup>**, Mun J<sup>1</sup>, Oh H<sup>1</sup>, Kim K<sup>2</sup>, Lee S<sup>2</sup>  
<sup>1</sup>Inha University, <sup>2</sup>Pohang Accelerator Laboratory, Postech, South Korea



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Session B10: Microfabrication

15.45- 16.45 DELPHI HALL

**15.45 B10-1 Manufacturing of local defined nano- and microstructures for semiconductor devices by dewetting phenomena**

**Ernst O**<sup>1</sup>, Eylers K<sup>1</sup>, Lange F<sup>2</sup>, Bonse J<sup>3</sup>, Krüger J<sup>3</sup>, Boeck T<sup>1</sup>

<sup>1</sup>Leibniz-Institut für Kristallzüchtung (IKZ), <sup>2</sup>Brandenburgische Technische Universität Cottbus-Senftenberg (BTU CS), <sup>3</sup>Bundesanstalt für Materialforschung und -prüfung (BAM), Germany

**16.00 B10-2 Templated dewetting of ultra-long wires for a Si-based circuit**

**Bollani M**<sup>1</sup>, Salvalaglio M<sup>2</sup>, Benali A<sup>3</sup>, Bouabdellaoui M<sup>3</sup>, Fedorov A<sup>1</sup>, Voigt A<sup>2</sup>, Favre L<sup>2</sup>, Claude J<sup>3</sup>, Grosso D<sup>3</sup>, Ronda A<sup>3</sup>, Berbezier I<sup>3</sup>, Abbarchi M<sup>3</sup>

<sup>1</sup>Institute of Photonics and Nanotechnologies of CNR (IFN -CNR), Italy, <sup>2</sup>Institute of Scientific Computing, Technische Universität, Germany, <sup>3</sup>IM2NP of CNRS, France

**16.15 B10-3 Deposition and optimization of Schottky junctions by Atomic Layer Deposition for piezotronic strain sensors**

**Joly R**<sup>1,2</sup>, Girod S<sup>1</sup>, Adjeroud N<sup>1</sup>, Nguyen T<sup>1,2</sup>, Menguelti K<sup>1</sup>, El Hachemi M<sup>1</sup>, Grysan P<sup>1</sup>, Klein S<sup>1</sup>, Polesel J<sup>1</sup>

<sup>1</sup>Luxembourg Institute of Science and Technology (LIST), <sup>2</sup>University of Luxembourg

**16.30 B10-4 Patterning Platinum using CMP and plasma etching industrially compatible processes**

**Elshaer A**<sup>1</sup>, Stricher R<sup>1</sup>, Darnon M<sup>1</sup>, Drouin D<sup>1</sup>, Ecoffey S<sup>1</sup>

<sup>1</sup>LN2, CNRS, Université de Sherbrooke, Canada, 3IT, UK

Session C10 Miscellaneous

15.45-16.45 JUPITER HALL

**15.45 C10-1 Highly sensitive and selective NO<sub>2</sub> gas sensor using patterned FTO electrodes**

**Kim Y**<sup>1</sup>, Bak S<sup>1</sup>, Lee J<sup>1</sup>, Lee S<sup>1</sup>, Woo K<sup>1</sup>, Lee S<sup>2</sup>, Yi M<sup>1</sup>

<sup>1</sup>Department of Electronics Engineering, Pusan National University, <sup>2</sup>Department of Smart Hybrid Engineering, Pusan National University, South Korea

**16.00 C10-2 Single-Mode Polymer Ridge Waveguide Integration of Organic Thin-Film Laser**

**Cehovski M**<sup>1,3</sup>, Becker J<sup>2</sup>, Charfi O<sup>1,3</sup>, Porten P<sup>1</sup>, Johannes H<sup>1,3</sup>, Müller C<sup>2</sup>, Kowalsky W<sup>1,3</sup>

<sup>1</sup>TU Braunschweig, IHF, <sup>2</sup>University of Freiburg, FIT, <sup>3</sup>Cluster of Excellence PhoenixD, Germany

**16.15 C10-3 A MEMS based capacitive resonator designed for the detection of the target analyte**

**Tez S**<sup>1</sup>

<sup>1</sup>Pamukkale University, Engineering Faculty, Department of Electric and Electronics Engineering, Turkey

**16.30 C10-4 Integration of piezoelectric nanostructures with MEMS by inkjet printing**

Gomez M, Gonzalez C, Duque M, Moya A, **Murillo G**<sup>1</sup>

<sup>1</sup>Microelectronics Institute of Barcelona, Spain



THURSDAY SEPTEMBER 26<sup>th</sup>, 2019

Session D10: Chem. Sensors & Biosensors II

15.45-16.45 ATHENA HALL

**15.45 D10-1 Engineering light collection volumes with microstructured tapered optical fibers for optical readout of neural activity monitoring**

**Maglie E**<sup>1,2</sup>, Pisanello M<sup>1</sup>, Pisano F<sup>1</sup>, Balena A<sup>1,2</sup>, Bianco M<sup>1,2</sup>, Spagnolo B<sup>1</sup>, Sabatini B<sup>3</sup>, De Vittorio M<sup>1,2</sup>, Pisanello F<sup>1</sup>

<sup>1</sup>*Istituto Italiano di Tecnologia, Center for Biomolecular Nanotechnologies, Italy* <sup>2</sup>*Dipartimento di Ingegneria dell'Innovazione, Università del Salento, Italy* <sup>3</sup>*Department of Neurobiology, Howard Hughes Medical Institute Harvard Medical School, USA*

**16.00 D10-2 Electrochemical Sensing Based on Inkjet-Printed Reduced Graphene Oxide on a Flexible Substrate**

Shamkhalichenar H<sup>1</sup>, **Choi J**<sup>1</sup>

<sup>1</sup>*Louisiana State University, USA*

**16.15 D10-3 Microelectrode Arrays with Integrated Pneumatic Cavities for Electrode Position Control in Retinal Prosthesis**

**Xu Y**<sup>1</sup>, Pang S<sup>1</sup>

<sup>1</sup>*City University of Hong Kong*

**16.30 D10-4 Effects of the Acid-base property of the Dopant on the SnO<sub>2</sub> Gas Sensor**

**Yuan Z**<sup>1</sup>

<sup>1</sup>*Northeastern University, China*

Plenary 8

16.45-17.30 JUPITER HALL

**New Materials and Devices for Interfacing with the Brain**

**George Malliaras**

*University of Cambridge, UK*

Announcements and Closing remarks

17.30 -18.00 JUPITER HALL

## POSTER PRESENTATIONS

### Thematic area A

PA01 Efficient Fabrication of Soft Polymer Microcantilevers from Dry Film Photoresist for Chemical Sensor Applications

**Nilsen M**<sup>1</sup>, Strehle S<sup>2</sup>

<sup>1</sup>Ulm University, Ulm, Germany, <sup>2</sup>Ilmenau University of Technology, Ilmenau, Germany

PA02 aquASAVE™: Antistatic Agent for Electron Beam Lithography

**Mori T**<sup>1</sup>

<sup>1</sup>Mitsubishi Chemical Corporation, Toyohashi-shi, Japan

PA03 Thermal Characteristics of new EUV Mask Structure to Reduce Mask 3D Effect

**Ban C**<sup>1</sup>, Park E<sup>1</sup>, Park J<sup>1</sup>, Oh H<sup>1</sup>

<sup>1</sup>Department Of Applied Physics, Lithography Laboratory, Hanyang University, Sa-3 dong, Sangrok-gu, Ansan-si, South Korea

PA04 Novel Lift-off Process for DUV Displacement Talbot Lithography

**Graczyk M**<sup>1</sup>, Gómez V<sup>1</sup>, Huffman M<sup>1</sup>, Maximov I<sup>1</sup>

<sup>1</sup>Solid State Physics, University of Lund, Lund, Sweden

PA05 Comparative study of theoretical contrast between extreme ultraviolet and electron beam lithography

**Kim K**<sup>1</sup>, Park B<sup>2</sup>, Oh H<sup>3</sup>, Lee J<sup>3</sup>, Lim G<sup>1</sup>, Lee S<sup>2</sup>

<sup>1</sup>Postech, Pohang, South Korea, <sup>2</sup>Pohang Accelerator Laboratory(PAL), Pohang, South Korea, <sup>3</sup>Inha University, Incheon, South Korea

PA06 SU-8 alternative - Atlas 46 and enhanced processing for electroplating applications

Grüneberger F<sup>1</sup>, Gerngroß M<sup>1</sup>, Schirmer M<sup>1</sup>, Matuskova B<sup>2</sup>, **Eibelhuber M**<sup>2</sup>, Zenger T<sup>2</sup>, Uhrmann T<sup>2</sup>, Weinhart M<sup>2</sup>

<sup>1</sup>Allresist GmbH, Strausberg, Germany, <sup>2</sup>EV Group, St. Florian am Inn, Austria

PA07 Machine learning based technique towards smart laser fabrication of CGH

**Anastasiou A**<sup>1</sup>, Zacharaki E<sup>2</sup>, Alexandropoulos D<sup>1</sup>, Moustakas K<sup>2</sup>, Vainos N<sup>1</sup>

<sup>1</sup>Dept. of Material Science, University Of Patras, Patra, Greece, <sup>2</sup>Dept. of Electrical and Computer Engineering, University Of Patras, Patra, Greece

PA08 Laser printing of Cu electrical circuits on glass substrates

**Tourlouki K**<sup>1</sup>, Alexandropoulos D<sup>1</sup>

<sup>1</sup>Dept. of Material Science, University of Patras, Patras, Greece

PA09 Fabrication of Holographic Optical Elements on Silver by Nanosecond IR Laser Source

**Alexandropoulos D**<sup>1</sup>, Mazzucato S<sup>2</sup>, Karoutsos V<sup>1</sup>, Politi C<sup>3</sup>, Vainos N<sup>1</sup>

<sup>1</sup>Dept. of Material Science, University Of Patras, Patra, Greece, <sup>2</sup>SISMA S.p.A., Piovene Rocchette (VI), Italy, <sup>3</sup>Dept. of Informatics and Telecommunications, University of Peloponnese, Tripoli, Greece

PA10 High-throughput DTL/optical-hybrid lithography for fabricating high-density silicon nanopillar arrays for field emission

**Jonker D**<sup>1</sup>, Tiggelaar R<sup>3</sup>, Berenschot J<sup>1</sup>, Tas N<sup>1</sup>, van Houselt A<sup>2</sup>, Zandvliet H<sup>2</sup>, Gardeniers J<sup>1</sup>

<sup>1</sup>Mesoscale Chemical Systems group, University of Twente, Enschede, Netherlands, <sup>2</sup>Physics of Interfaces and Nanomaterials group, University of Twente, Enschede, Netherlands, <sup>3</sup>NanoLab cleanroom, University of Twente, Enschede, Netherlands



PA11 Localized Laser Pyrolysis of SU-8 by Addition of Absorber

**Ludvigsen E<sup>1</sup>**, Pedersen N<sup>1</sup>, Zhu X<sup>2</sup>, Marie R<sup>2</sup>, Mackenzie D<sup>3</sup>, Pedersen D<sup>3</sup>, Kristensen A<sup>2</sup>, Emnéus J<sup>4</sup>, Keller S<sup>1</sup>

<sup>1</sup>DTU Nanolab, Technical University Of Denmark, Kgs. Lyngby, Denmark, <sup>2</sup>DTU Health Tech, Technical University of Denmark, Kgs. Lyngby, Denmark, <sup>3</sup>DTU Physics, Technical University of Denmark, Kgs. Lyngby, Denmark, <sup>4</sup>DTU Bioengineering, Technical University of Denmark, Kgs. Lyngby, Denmark

PA12 Nanofabrication of thick zone plates for hard X-ray optics using SML resist

**Zhuangzhuang W<sup>1</sup>**

<sup>1</sup>Fudan University, Shanghai, China

PA13 E-beam lithography (EBL) with conductive layer between resist and sapphire substrate

**Diewald S<sup>1</sup>**, Goll G<sup>1</sup>

<sup>1</sup>Center for Functional Nanostructures – Nanostructure Service Laboratory (CFN-NSL), Karlsruhe Institute of Technology (KIT), Karlsruhe, Germany

PA14 Recent advances in ice lithography for 3D nanofabrication

**Zhao D<sup>1</sup>**, Elsukovaa A<sup>1</sup>, Batzer M<sup>2</sup>, Shields B<sup>2</sup>, Maletinsky P<sup>2</sup>, Beleggia M<sup>1</sup>, Han A<sup>3</sup>

<sup>1</sup>DTU Nanolab, Technical University of Denmark, Kgs. Lyngby 2800, Denmark, <sup>2</sup>Department of Physics, University of Basel, Basel CH-4056, Switzerland, <sup>3</sup>Department of Mechanical Engineering, Technical University of Denmark, Kgs. Lyngby 2800, Denmark

PA15 Comparison of positive and negative high resolution e-beam processes for the fabrication of nanoconstrictions

**Gerngroß M<sup>1</sup>**, Grüneberger F<sup>1</sup>, Lake S<sup>2</sup>, Dürrenfeld P<sup>2</sup>, Heyroth F<sup>2</sup>, Schirmer M<sup>1</sup>, Schmidt G<sup>2,3</sup>

<sup>1</sup>Allresist GmbH, Strausberg, Germany, <sup>2</sup>Institut für Physik, Martin-Luther-Universität Halle-Wittenberg, Halle (Saale), Germany, <sup>3</sup>Interdisziplinäres Zentrum für Materialwissenschaften, Martin-Luther-Universität Halle-Wittenberg, Halle (Saale), Germany

PA16 HSQ alternative Medusa 82 for gray-scale lithography

**Gerngroß M<sup>1</sup>**, Grüneberger F<sup>1</sup>, Schirmer M<sup>1</sup>, Voigt P<sup>2</sup>, Hübner U<sup>2</sup>

<sup>1</sup>Allresist GmbH, Strausberg, Germany, <sup>2</sup>Leibniz-Institute of Photonic Technology, Jena, Germany

PA17 An optimal dosage test in electron beam lithography for GaN nanoLEDs fabrication

**Zaidi S<sup>1</sup>**

<sup>1</sup>Institute Of Semiconductor & Technology, Braunschweig, Germany

PA18 Magnetic skyrmions in thin Co/Pt/Au multilayer nanodots inspected by a tailored magnetic probe

**Soltys J<sup>1</sup>**, Vetrova I<sup>1</sup>, Scepka T<sup>1</sup>, Mruczkiewicz M<sup>1</sup>, Derer J<sup>1</sup>, Gazi S<sup>1</sup>, Cambel V<sup>1</sup>

<sup>1</sup>Institute Of Electrical Engineering, Bratislava, Slovakia

PA19 High throughput Mix and Match nano lithography based on Scanning Laser Beam -, Field-Emission Scanning Probe-, and Nano Imprint Lithography

Hofmann M<sup>1</sup>, **Weidenfeller L<sup>2</sup>**, Supreeti S<sup>3</sup>, Kirchner J<sup>2</sup>, Holz M<sup>4</sup>, Reuter C<sup>4</sup>, Mechold S<sup>1</sup>, Manske E<sup>2</sup>, Rangelow I<sup>1</sup>

<sup>1</sup>Ilmenau University of Technology, Department of Micro- and Nanoelectronic Systems, Gustav-Kirchhoff-Str. 1, 98693 Ilmenau, Germany, Ilmenau, Germany, <sup>2</sup>Ilmenau University of Technology, Institute for Process Measurement and Sensor Technology, Gustav-Kirchhoff-Str. 1, 98693 Ilmenau, Germany, Ilmenau, Germany, <sup>3</sup>Ilmenau University of Technology, Department of Microsystems Technology, Max-Planck-Ring 12, 98693 Ilmenau, Germany, Ilmenau, Germany, <sup>4</sup>Nanoanalytik GmbH, Ehrenbergstr. 1, 98693 Ilmenau, Germany, Ilmenau, Germany



PA20 Preparation of Micro- and Nanostructures by Ion or Electron Beam Lithography and Following Selective Wet Etching

**Šamořil T<sup>1</sup>**

<sup>1</sup>Central European Institute of Technology, Brno, Czech Republic

PA21 Power-law short-range point-spread function in electron-beam lithography

**Albrechtsen M<sup>1</sup>**, Stobbe S<sup>1,2</sup>

<sup>1</sup>Department Of Photonics Engineering, DTU Fotonik, Technical University Of Denmark, DK-2800 Kgs. Lyngby, Denmark, <sup>2</sup>Beamfox Technologies ApS, DK-2400 Copenhagen NV, Denmark

PA22 Resistless SixN patterns fabrication by e-beam lithography

**Indykiewicz K<sup>1</sup>**, Paszkiewicz B, Paszkiewicz R

<sup>1</sup>Wroclaw University of Science and Technology, Wroclaw, Poland

PA23 Sub40 nm planar Al nanowires using two-layer resis stacks

**Kalaitzakis F<sup>1</sup>**, Papageorgiou G<sup>1</sup>, Ryazanov V<sup>2</sup>, Arutunov K<sup>3</sup>, Normand P<sup>1</sup>, Dimitrakis P<sup>1</sup>

<sup>1</sup>Institute of Nanoscience & Nanotechnology, NCSR "Demokritos", Ag. Paraskevi, Greece, <sup>2</sup>Institute of Solid State Physics, Russian Academy of Sciences, Chernogolovka, Russia, <sup>3</sup>Institute for Electronics and Mathematics, High School of Economics, Moscow, Russia

PA24 Ion beam lithography: sensitivity and contrast of PMMA resist determination

**Shabelnikova Y<sup>1</sup>**

<sup>1</sup>Institute Of Microelectronic Technology And High Purity Materials Ras, Chernogolovka, Russian Federation

PA25 Fluorescent ionic liquid structures fabricated by e-beam lithography

**Kowal D<sup>1</sup>**, Rola K<sup>1</sup>, Cybinska J<sup>1,2</sup>, Skorenski M<sup>1</sup>, Zajac A<sup>3</sup>, Smiglak M<sup>3</sup>, Drobczynski S<sup>4</sup>, Komorowska K<sup>1,4</sup>

<sup>1</sup>Lukasiewicz Research Network - PORT Polish Center For Technology Development, Wroclaw, Poland, <sup>2</sup>Faculty of Chemistry, University of Wroclaw, Wroclaw, Poland, <sup>3</sup>Poznan Science and Technology Park, Poznan, Poland, <sup>4</sup>Faculty of Fundamental Problems of Technology, Wroclaw University of Science and Technology, Wroclaw, Poland

PA26 Fabrication and application of high-performance flexible transparent nanomesh electrodes

**Chung S<sup>1</sup>**, Kim P<sup>1</sup>, Ha T<sup>1</sup>, Lee E<sup>2</sup>, Kim K<sup>2</sup>

<sup>1</sup>Korea Electrotechnology Research Institute, Miryang, South Korea, <sup>2</sup>Korea Institute of Machinery & Materials, Daejeon, South Korea

PA27 Impact of plasma treatment on the pattern fidelity of nanostructured polymer surfaces

**Eibelhuber M<sup>1</sup>**, Dudus A<sup>1</sup>, Gasiorowski J<sup>1</sup>, Barb R<sup>1</sup>, Thanner C<sup>1</sup>, Martens S<sup>2</sup>, Hartbaum J<sup>2</sup>

<sup>1</sup>Evgroup, St. Florian am Inn, Austria, <sup>2</sup>Insitut für Mikroelektronik Stuttgart (IMS CHIPS), Stuttgart, Germany

PA28 Transfer durability of line-patterned replica mould made of high hardness UV-curable resin

**Marumo T<sup>1</sup>**, Taniguchi J<sup>1</sup>

<sup>1</sup>Tokyo University of Science, Tokyo, Japan

PA29 Fabrication of microchannel via UV-NIL and EBL using UV curable positive-tone EB resist

**Matsumoto H<sup>1</sup>**, Okabe T<sup>1</sup>, Taniguchi J<sup>1</sup>

<sup>1</sup>Tokyo university of science, Tokyo, Japan



PA30 Fabrication of composite-electrode for SOFC via ultra violet nanoimprint lithography

**Akama R**<sup>1</sup>, Okabe T<sup>1</sup>, Sato K<sup>2</sup>, Shikazono N<sup>3</sup>, Taniguchi J<sup>1</sup>

<sup>1</sup>Tokyo University of Science, Tokyo, Japan, <sup>2</sup>Gunma University, Gunma, Japan, <sup>3</sup>Institute of Industrial Science, The University of Tokyo, Tokyo, Japan

PA31 Moth-eye structured mould using sputtered glassy carbon layer for large scale application

**Yano T**<sup>1</sup>, Sugawara H<sup>2</sup>, Taniguchi J<sup>1</sup>

<sup>1</sup>Tokyo University of Science, Tokyo, Japan, <sup>2</sup>GEOMATEC Co., Ltd., Yokohama, Japan

PA32 Blue light nanoimprint lithography for patterning a positive-tone EB resist

**Okabe T**<sup>1</sup>, Matsumoto H<sup>1</sup>, Taniguchi J<sup>1</sup>

<sup>1</sup>Tokyo University of Science, Tokyo, Japan

PA33 Analysis of surface cracks in VUV-hardened PDMS by means of video evaluation

**Leifels M**<sup>1</sup>, Mayer A<sup>1</sup>, Görrn P<sup>1</sup>, Scheer H<sup>1</sup>

<sup>1</sup>University Of Wuppertal, Wuppertal, Germany

PA34 Hot punching: A versatile tool to fabricate microparticles

**Petersen R**<sup>1,2</sup>, Keller S<sup>1,2</sup>, Boisen A<sup>2</sup>

<sup>1</sup>DTU Nanolab, Technical University of Denmark, Kongens Lyngby, Denmark, <sup>2</sup>DNRF and Villum Fonden Center for Intelligent Drug Delivery and Sensing Using Microcontainers and Nanomechanics, IDUN, DTU Health Tech, Kongens Lyngby, Denmark

PA35 Roll-to-Roll Fabrication of Residual-Layer-Free Micro/Nanoscale Membranes with Precise Pore Architectures and Tunable Surface Textures

**Wong H**<sup>1</sup>, Greci G<sup>2</sup>, Viasnoff V<sup>2</sup>, Low H<sup>1</sup>

<sup>1</sup>Singapore University Of Technology And Design, Singapore, Singapore, <sup>2</sup>Mechanobiology Institute, National University Singapore, Singapore, Singapore

PA36 Imprint-induced grain growth in perovskite layers

**Mayer A**<sup>1</sup>, Pourdavoud N<sup>1</sup>, Haeger T<sup>1</sup>, Heiderhoff R<sup>1</sup>, Leifels M<sup>1</sup>, Rond J<sup>1</sup>, Staabs J<sup>1</sup>, Görrn P<sup>1</sup>, Riedl T<sup>1</sup>, Scheer H<sup>1</sup>

<sup>1</sup>University of Wuppertal, Wuppertal, Germany

PA37 Development of precise tension and force control technology for 1200mm wide roll-to-roll nanoimprint system

Lee S<sup>1</sup>, Kwon S<sup>1</sup>, Jang Y<sup>1</sup>, Jo J<sup>1</sup>, Lee E<sup>1</sup>, Choi Y<sup>2</sup>, **Kim K**<sup>1</sup>

<sup>1</sup>Korea Institute Of Machinery And Materials, Daejeon, South Korea, <sup>2</sup>Ajou University, Suwon, South Korea

PA38 Shear force measurement of actuated, gecko-inspired adhesion elements with hierarchical PDMS pattern

**Zajadacz J**<sup>1</sup>, Zimmer K<sup>1</sup>, Lorenz P<sup>1</sup>, Mayer A<sup>2</sup>, Papenheim M<sup>2</sup>, Scheer H<sup>2</sup>

<sup>1</sup>Leibniz-Institute of Surface Engineering, Leipzig, Germany, <sup>2</sup>School of Electrical, Information and Media Engineering, University of Wuppertal, Wuppertal, Germany

PA39 Magnetic- plasmonic nanoparticles fabricated with high throughput step and repeat nanoimprint lithography

**Haslinger M**<sup>1</sup>, Mitterramskogler T<sup>1</sup>, Shoshi A<sup>2</sup>, Schrittwieser S<sup>3</sup>, Schotter J<sup>3</sup>, Brueckl H<sup>2</sup>, Muehlberger M<sup>1</sup>

<sup>1</sup>Profactor GmbH., Steyr-gleink, Austria, <sup>2</sup>Danube University Krems, Department for Integrated Sensor Systems, Wiener Neustadt, Austria, <sup>3</sup>AIT Austrian Institute of Technology, Molecular Diagnostics, Vienna, Austria



PA40 Combining Multilayer Multimaterial Nanoimprinting and Inkjet Printing

**Mühlberger M<sup>1</sup>**, Moharana A<sup>1</sup>, Außerhuber H<sup>1</sup>, Kopp S<sup>1</sup>, Mitteramkogler T<sup>1</sup>, Fechtig D<sup>1</sup>

<sup>1</sup>PROFACTOR GmbH, Steyr-Gleink, Austria

PA41 Computational study on molecular size dependence on pressing and de-molding process in nanoimprint lithograph

Sakata R<sup>1</sup>, Yasuda M<sup>1</sup>, Miyashita Y<sup>1</sup>, Tada K<sup>2</sup>, Shirai M<sup>1</sup>, Kawata H<sup>1</sup>, **Hirai Y<sup>1</sup>**

<sup>1</sup>Osaka Prefecture University, Sakai, Japan, <sup>2</sup>National Institute of Technology, Toyama College, Toyama, Japan

PA42 Molecular simulation study of demolding process in UV nanoimprint

Koyama M<sup>1</sup>, Nakajima K<sup>1</sup>, Shirai M<sup>1</sup>, Kawata H<sup>1</sup>, Hirai Y<sup>1</sup>, **Yasuda M<sup>1</sup>**

<sup>1</sup>Osaka Prefecture University, Sakai, Japan

PA43 Displacement Talbot Lithography for Fabrication of Large Area Nanoimprint Stamps

**Graczyk M<sup>1</sup>**, Asif M<sup>1</sup>, Maximov I<sup>1</sup>

<sup>1</sup>Lund University, Lund, Sweden

PA44 Nanoimprint Lithography as New Route towards 3-dimensionally structured substrates for in-vitro cell cultures

**Wanzenboeck H<sup>1</sup>**, Ertl P<sup>1</sup>, Schuller P<sup>1</sup>, n. n<sup>2</sup>, Muehlberger M<sup>2</sup>

<sup>1</sup>TU Wien - Vienna University of Technology, Vienna, Austria, <sup>2</sup>Profactor GmbH, Steyr, Austria

PA45 A novel process to realize 4H-SiC nanowire arrays

**Androulidaki M<sup>1</sup>**

<sup>1</sup>MRG-IESL/ FORTH, Vassilika Vouton, PO Box 1385 Heraklion, Greece, Heraklion, CRETE, Greece

PA46 Flexible Fabrication Method of Waveguide Integrated Laser Source by CNP Process

**Becker J<sup>1,4</sup>**, Čehovski M<sup>2,3</sup>, Caspary R<sup>2,3</sup>, Johannes H<sup>2,3</sup>, Kowalsky W<sup>2,3</sup>, Mueller C<sup>1,4</sup>

<sup>1</sup>Freiburger Zentrum für interaktive Werkstoffe und bioinspirierte Technologien (FIT), Albert-Ludwigs-Universität Freiburg, Freiburg, Germany, <sup>2</sup>Institut für Hochfrequenztechnik, Technische Universität Braunschweig, Braunschweig, Germany, <sup>3</sup>Cluster of Excellence PhoenixD (Photonics, Optics, and Engineering – Innovation Across Disciplines), Hannover, Germany, <sup>4</sup>Servicecenter Mechanische Mikrofertigung, IMTEK, Albert-Ludwigs-Universität Freiburg, Freiburg, Germany

PA47 Directed self-assembly of block copolymer films on atomically-thin graphene chemical patterns

**Xiong S<sup>1</sup>**

<sup>1</sup>Fudan University, Shanghai, China

PA48 Towards faster self-assembly in block copolymer films: the use of plasma treatment

**Giraud E<sup>1,2</sup>**, Ghoshal T<sup>1,2</sup>, Morris M<sup>1</sup>

<sup>1</sup>School Of Chemistry, AMBER, Trinity College Dublin, Dublin, Ireland, <sup>2</sup>Department of Chemistry, University College Cork, Cork, Ireland

PA49 STM imaging enhancements for better features identification

**Fuchs E<sup>1</sup>**, Lake J<sup>1</sup>, Owen J<sup>1</sup>, Randall J<sup>1</sup>

<sup>1</sup>Zyvex Labs, Richardson, United States



PA50 Terraced nanostructures induced by ion beam sputtering with Mo co-deposition: Morphological and optical characterization

**刘颖<sup>1</sup>**

<sup>1</sup>University Of Science and Technology of China, Hefei, 中国

PA51 Analysis of Mechanical Failure of Complex Microneedle Arrays Fabricated by 3D Laser Lithography and Embossing Techniques

**Faraji Rad Z<sup>1</sup>**, Prewett P<sup>2</sup>, Davies G<sup>3</sup>

<sup>1</sup>University of Southern Queensland, Brisbane, Australia, <sup>2</sup>Oxford Scientific Consultants Ltd, Oxford, United Kingdom, <sup>3</sup>University of New South Wales, Sydney, Australia

PA52 Process optimization of Medusa 82 resist by electron beam lithography

**Papageorgiou G<sup>1</sup>**

<sup>1</sup>NCSR "Demokritos", Athens, Greece

PA53 Modified fluoros developer solutions with additives for Orthogonal Photolithography of organic light emitting diode displays

**Son J<sup>1</sup>**, Lee J<sup>1</sup>, Shin H<sup>2</sup>, Choi Y<sup>2</sup>, Jung B<sup>2</sup>

<sup>1</sup>inha university, Incheon, South Korea, <sup>2</sup>University of Seoul, Seoul, South Korea

PA54 Time- and cost-effective fabrication of micro-structured sample holders for serial crystallography experiments

**Barthelmeß M<sup>1</sup>**, Nissinen V<sup>2</sup>, Karvinen P<sup>2</sup>, Fischer P<sup>1</sup>, Pakendorf T<sup>1</sup>, Bustos K<sup>1</sup>, Peña G<sup>1</sup>, Chapman H<sup>1</sup>, Meents A<sup>1</sup>

<sup>1</sup>Center for Free-Electron Laser Science, Deutsches Elektronen Synchrotron DESY, Hamburg, Germany,

<sup>2</sup>Institute of Photonics, University of Eastern Finland, Joensuu, Finland

PA55 Brilliant Fluorescent Resists for E-beam and Photolithographic Applications

**Grüneberger F<sup>1</sup>**, Gerngroß M<sup>1</sup>, Schirmer M<sup>1</sup>, Steglich T<sup>2</sup>, Bastian P<sup>3</sup>, Steffen M<sup>3</sup>, Kumke M<sup>3</sup>

<sup>1</sup>Allresist GmbH, Strausberg, Germany, <sup>2</sup>Präzisionsoptik Gera GmbH, Gera, Germany, <sup>3</sup>Physical Chemistry, Institute of Chemistry, University of Potsdam, Potsdam, Germany

PA56 A new specifically tailored resist for UV-NIL using gas permeable soft stamp and a study of its etching behaviour on fused silica substrates

**Si S<sup>1</sup>**, Messerschmidt M<sup>2</sup>, Thesen M<sup>2</sup>, Schleunitz A<sup>2</sup>, Grützner G<sup>2</sup>, Sinzinger S<sup>1</sup>

<sup>1</sup>Technische Universität Ilmenau, Ilmenau, Germany, <sup>2</sup>micro resist technology GmbH, Berlin, Germany

PA57 New PDMAEMA based block copolymers for emerging nanotechnologies

**Nika A<sup>1,2</sup>**, Manouras T<sup>3</sup>, Argitis P<sup>2</sup>, Vamvakaki M<sup>3,4</sup>, Chatzichristidi M<sup>1</sup>

<sup>1</sup>National And Kapodistrian University Of Athens, Athens, Greece, <sup>2</sup>Institute of Nanoscience and Nanotechnology, NCSR "Demokritos", , Aghia Paraskevi, Greece, <sup>3</sup>Department of Materials Science and Technology, University of Crete, Heraklion, Greece, <sup>4</sup>Institute of Electronic Structure and Laser, Foundation for Research and Technology - Hellas, Heraklion, Greece

PA58 Solution-Based Micro- and Nanoscale Metal Oxide Structures Formed by Direct Laser Patterning

**Soppera O<sup>1</sup>**

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PA59 Electron beam direct writing of polymer microstructures using a solvent-free ionic liquid as a resist

**Rola K<sup>1</sup>**, Zajac A<sup>2</sup>, Szepecht A<sup>2,3</sup>, Cybinska J<sup>1,4</sup>, Smiglak M<sup>2</sup>, Komorowska K<sup>1,5</sup>

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PA60 Deep reactive ion etching of grass-free widely spaced periodic 2D structure

**Silvestre C<sup>1</sup>**, Jansen H<sup>1</sup>, Hansen O<sup>1</sup>

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PA61 Vertical High Aspect Ratio Silicon Via Etching for TSV Applications

**Stokeley K<sup>1</sup>**, Ren Z<sup>1</sup>

<sup>1</sup>Oxford Instruments, Bristol, United Kingdom

PA62 Fabrication of decorated nanopillar arrays for silicon light trapping enhancement in solar cell applications

**Llobet J<sup>1</sup>**, Calaza C<sup>1</sup>, Antunes M<sup>1</sup>, Fonseca H<sup>1</sup>, Martins S<sup>1</sup>, Faingold Y<sup>2</sup>, Fadida S<sup>2</sup>, Prajapati A<sup>2</sup>, Shalev G<sup>2</sup>, Gaspar J<sup>1</sup>

<sup>1</sup>International Iberian Nanotechnology Laboratory, Braga, Portugal, <sup>2</sup>Ben-Gurion University of the Negev, Be'er Sheva, Israel

PA63 Surface functionalization by patterning and etching of metals using chlorine plasmas

**Le Dain G<sup>1</sup>**, Laourine F<sup>2</sup>, Rhallabi A<sup>1</sup>, Girard A<sup>1</sup>, Cardinaud C<sup>1</sup>, Czerwicz T<sup>2</sup>, Guilet S<sup>3</sup>, Turover D<sup>4</sup>, Marcos G<sup>2</sup>

<sup>1</sup>Institut Des Materiaux Jean Rouxel, Cnrs, Nantes, France, <sup>2</sup>Institut Jean Lamour, Nancy, France, <sup>3</sup>Centre de Nanosciences et Nanotechnologies, Palaiseau, France, <sup>4</sup>SILSEF, Archamps, France

PA64 Cryogenic etching for large area pattern transfer into silicon of Mix-and-Match structured resist layers

**Weidenfeller L<sup>1</sup>**, Hofmann M<sup>2</sup>, Kirchner J<sup>1</sup>, Holz M<sup>3</sup>, Reuter C<sup>3</sup>, Mechold S<sup>2</sup>, Manske E<sup>1</sup>, Rangelow I<sup>2</sup>

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PA65 A short post-processing method for high aspect ratio trenches after Bosch etching

**Veltkamp H<sup>1</sup>**, Zhao Y<sup>1</sup>, de Boer M<sup>1</sup>, Wiegerink R<sup>1</sup>, Lötters J<sup>1,2</sup>

<sup>1</sup>University Of Twente, Enschede, The Netherlands, <sup>2</sup>Bronkhorst High-Tech BV, Ruurlo, The Netherlands

PA66 Low-temperature etching of porous low-k dielectrics in C2F4Br2 plasma

**Miakonkikh A<sup>1,2</sup>**, Rezvanov A<sup>2,3</sup>, Vishnevskiy A<sup>4</sup>, Rudenko K<sup>1,2</sup>

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PA67 Cobalt subtractive etch for advanced interconnects

**Rogozhin A<sup>1</sup>**, Miakonkikh A<sup>1</sup>, Tatarintsev A<sup>1</sup>, Rudenko K<sup>1</sup>

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PA68 Anisotropic plasma etching of Silicon in gas chopping process by alternating steps of oxidation and etching

**Miakonkikh A<sup>1</sup>**, Averkin S<sup>1</sup>, Rudenko K<sup>1</sup>, Lukichev V<sup>1</sup>

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PA69 A study of the effect of bilayer resist sensitivity difference on the T shape gate profiles

**Xie Y<sup>1</sup>**, Chen Z<sup>1</sup>, Deng J<sup>1</sup>, Zhu M<sup>1</sup>, Chen Y<sup>1</sup>

<sup>1</sup>Nanolithography and Application Research Group, Fudan University, Shanghai, China

PA70 Optimum design of a 740 mm-long lens mount for fast line-beam proximity exposure process producing fine patterns with 5 μm width

**Lee C<sup>1</sup>**, Yang H<sup>1</sup>, Ryu S<sup>2</sup>, Oh J<sup>1</sup>

<sup>1</sup>Hanyang University, Ansan, , South Korea, <sup>2</sup>Philoptics Co. Ltd, Suwon, , South Korea

PA71 Direct Monte-Carlo simulation of dry e-beam etching of resist

**Sidorov F<sup>1,2</sup>**, Rogozhin A<sup>1</sup>, Bruk M<sup>1</sup>, Zhikharev E<sup>1</sup>

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PA72 High throughput AFM wafer inspection with parallel active cantilevers

Holz M<sup>2</sup>, Reuter C<sup>2</sup>, Ahmad A<sup>2</sup>, **Hofmann M<sup>1</sup>**, Reum A<sup>2</sup>, Ivanov T<sup>1</sup>, Mechold S<sup>1</sup>, Rangelow I<sup>1</sup>

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PA73 AFM integrated with a SEM for correlative imaging, 3D-metrology and nanofabrication

**Hofmann M<sup>1</sup>**, Holz M<sup>2</sup>, Reum A<sup>2</sup>, Weidenfeller L<sup>3</sup>, Mechold S<sup>1</sup>, Manske E<sup>3</sup>, Ivanov T<sup>1</sup>, Rangelow I<sup>1</sup>

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PA74 Improving the accuracy of Line Edge Roughness measurement using Hidden Markov Models

**Papavieros G<sup>1,2,4</sup>**, Constantoudis V<sup>1,2</sup>, Kontoyiannis I<sup>3</sup>, Giannatou E<sup>2</sup>, Gogolides E<sup>1,2</sup>

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PA75 AFM tip shape characterization and measurement correction through the use of e-beam nanopillar standards with optimized sharpness

**Papageorgiou G<sup>1</sup>**

<sup>1</sup>NCSR "Demokritos", Athens, Greece

PA76 SEM Inspection of Nanowire Devices: Contact Inspection, Resistance and Capacitance Measurement and Buckling Evaluation

**Ohashi T<sup>1</sup>**, Ikota M<sup>2</sup>, Hasumi K<sup>2</sup>, Lorusso G<sup>3</sup>, Mertens H<sup>3</sup>, Witters L<sup>3</sup>, Horiguchi N<sup>3</sup>

<sup>1</sup>Hitachi, Ltd., Tokyo, Japan, <sup>2</sup> Hitachi High-Technologies Corporation, Hitachinaka, Japan, <sup>3</sup>imec, Leuven, Belgium



PA77 A hybrid modeling framework for the investigation of roughness formation during plasma etching of polymeric surfaces

Memos G<sup>1,2</sup>, Lidorikis E<sup>2</sup>, **Kokkoris G**<sup>1</sup>

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## Thematic area B

PB01 Selective Area Deposition via Polymer Brush Films

**Lundy R**<sup>1</sup>, Yadav P<sup>1</sup>, Morris M<sup>1</sup>

<sup>1</sup>School of Chemistry, AMBER@CRANN, Trinity College Dublin, Dublin, Ireland

PB02 Nanostructure fill with conductive transparent oxide with supercritical CO<sub>2</sub> intending to be applied to porous Si-based light emitting devices

**Kondoh E**<sup>1</sup>, Shioda A<sup>1</sup>, Jin L<sup>1</sup>, Gelloz B<sup>2</sup>

<sup>1</sup>University of Yamanashi, Kofu, Japan, <sup>2</sup>Nagoya University, Nagoya, Japan

PB03 Novel Fabrication Method for Diamond-Shaped Silicon Nanowires on (100)-Oriented Single Crystal Silicon

He Y<sup>1,2</sup>, Yang Y<sup>1,2</sup>, Wang Y<sup>1</sup>, **Li T**<sup>1</sup>

<sup>1</sup>SIMIT, CAS, Shanghai, China, <sup>2</sup>UCAS, Beijing, China

PB04 Towards Faster EBID Growth Using MeCpPtMe<sub>3</sub> in a Desktop SEM

**Mahgoub A**<sup>1</sup>

<sup>1</sup>Tu Delft, Delft, Netherlands

PB05 Design and fabrication of hierarchical multi-scale structures on curved surface

Yeo N<sup>1</sup>, **Kim D**<sup>1</sup>, Jeong M<sup>1</sup>

<sup>1</sup>Pusan National University, Busan, South Korea

PB06 Fabrication of Gold on glass photonic nanostructures.

**Cousins R**<sup>1</sup>, Naznin S<sup>2</sup>, Pezeshki H<sup>2</sup>, Clark M<sup>2</sup>, Mellor C<sup>3</sup>

<sup>1</sup>nmRC, University Of Nottingham, United Kingdom, <sup>2</sup>Electrical and electronic engineering, University Of Nottingham, United Kingdom, <sup>3</sup>Physics and Astronomy, University Of Nottingham, United Kingdom

PB07 Engineering the Oxide/Metal interface through the insertion of a buffer layer: self-organized formation of CoO nanostructures on Fe(001)

**Brambilla A**<sup>1</sup>, Picone A<sup>1</sup>, Giannotti D<sup>1</sup>, Finazzi M<sup>1</sup>, Duò L<sup>1</sup>, Ciccacci F<sup>1</sup>

<sup>1</sup>Dipartimento Di Fisica, Politecnico Di Milano, Milano, Italy

PB08 Silicon Oxide Compatible Etching Process For Oxynitride And Silicon Nitride

**Kiryushina I**<sup>1</sup>, Islyaykin A<sup>1</sup>, Ozerin Y<sup>1</sup>

<sup>1</sup>MERI JSC, Zelenograd, Moscow, Russian Federation

PB09 Fabrication of metal-nanopillar nanostructures for plasmomechanical applications

**Buch Z**<sup>1</sup>

<sup>1</sup>TU Wien, Vienna, Austria

PB10 Study on X-ray radiolysis-induced-chemical reaction at interface between liquid and substrate for additive manufacturing process

**Yamaguchi A**<sup>1</sup>, Sakurai I, Okada I, Ishihara M, Fukuoka T, Elphick, Jackson E, Hirohata A, Utsumi Y

<sup>1</sup>University of Hyogo, Kamigori, Japan



PB11 Selective electrochemical wet etching for 3D Ni/Cu electrode

**Hwang S<sup>1</sup>**, Park H<sup>1</sup>, Lee J<sup>1</sup>, Kim C<sup>1</sup>, Lee K<sup>1</sup>, Kang H<sup>1</sup>

<sup>1</sup>*Korea Advanced Nanofab Center, Suwon, South Korea*

PB12 Surface Effect on the Operation of a NEMS Switch

**Shahbeigi Roudposhti S<sup>1</sup>**, Guneri Yazgi S<sup>1</sup>, Hofmann M<sup>2</sup>, Bicer M<sup>1</sup>, Nasr Esfahani M<sup>3</sup>, W. Rangelow I<sup>2</sup>, Alaca E<sup>1,4</sup>

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PB13 Evaluation of etching characteristics on titanium-assisted chemical vapor etching of silicon dioxide

**Nishida H<sup>1</sup>**

<sup>1</sup>*Graduate School of Frontier Sciences, The University Of Tokyo, Chiba, Japan*

PB14 Morphology Modification of Si Nanopillars under Ion Irradiation at Elevated Temperatures

**Xu X<sup>1</sup>**, Heinig K<sup>1</sup>, Möller W<sup>1</sup>, Engelmann H<sup>1</sup>, Klingner N, Gharbi A<sup>2</sup>, Tiron R<sup>2</sup>, von Borany J<sup>1</sup>, Hlawacek G<sup>1</sup>

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PB15 Emerging ultrafast-laser-assisted and conductive nanofiber fabrication on flexible graphene-based substrate for gas detection

**Chang T<sup>1</sup>**, Chou C<sup>1</sup>, Lee Y<sup>2</sup>, Yang J<sup>1</sup>

<sup>1</sup>*Department of Mechatronic Engineering, National Taiwan Normal University, Taipei, Taiwan, R.O.C.*, <sup>2</sup>*Department of Mechanical and Aerospace Engineering, Chung Cheng Institute of Technology, National Defense University, Taoyuan, Taiwan, R.O.C.*

PB16 Metallic ink composed of nickel-silver core-shell nanoparticles for preparation of conductive coating

**Pajor-świerzy A<sup>1</sup>**, Socha R<sup>1</sup>, Pawłowski R<sup>2</sup>, Warszyński P<sup>1</sup>, Szczepanowicz K<sup>1</sup>

<sup>1</sup>*Jerzy Haber Institute of Catalysis and Surface Chemistry Polish Academy of Sciences, 30-239 Krakow, Poland*, <sup>2</sup>*Abraxas Jeremiasz Olgierd, 44-300 Wodzisław Śląski, Poland*

PB17 Transparent Super Water-Repellent Surface using ZnO Nanorod

Kim H<sup>1</sup>, Lee C<sup>1</sup>, Kwon J<sup>1</sup>, Sohn S<sup>2</sup>, Kim J<sup>1</sup>, Cho C<sup>3</sup>, **Kim B<sup>1</sup>**

<sup>1</sup>*Daegu Catholic University, Gyeongsan, Korea*, <sup>2</sup>*Pohang University of Science and Technology, Pohang, Korea*, <sup>3</sup>*Kyungpook National University, Daegu, Korea*

PB18 Optimal fabrication and characterization of YAG:Ce nanopowders for LED lighting

**Lee Y<sup>1</sup>**, Chang T<sup>2</sup>, Wu S<sup>1</sup>

<sup>1</sup>*National Defense University, Taoyuan, Taiwan*, <sup>2</sup>*National Taiwan Normal University, Taipei, Taiwan*, <sup>3</sup>*National Defense University, Taoyuan, Taiwan*

PB19 Effective Growth of Pure Long-straight Boron Nitride Nanowires strain and application as humidity sensor

**Li L<sup>1</sup>**

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PB20 Hybrid Plasmonic Nanostructures via Block Copolymer Nanopatterning

**Selkirk A**<sup>1</sup>

<sup>1</sup>Trinity College, The University of Dublin, Lucan, Ireland

PB21 The Path to Molecularly Precise Self-Assembly

Zwolak M<sup>1</sup>, Majikes J<sup>1</sup>, **Liddle J**<sup>1</sup>

<sup>1</sup>NIST, Gaithersburg, United States

PB22 Investigation of morphological and structural properties of hot-wire deposited molybdenum sulphide thin films

**Papadimitropoulos G**<sup>1</sup>, Balliou A<sup>1</sup>, Davazoglou D<sup>1</sup>, Kouvatsos D<sup>1</sup>

<sup>1</sup>NCSR Demokritos, Aghia Paraskevi, Greece

PB23 Study of the fabrication of vertical GaN nanowire transistors

**Doundoulakis G**<sup>1,2</sup>, Adikimenakis A<sup>1,2</sup>, Stavrinidis A<sup>2</sup>, Tsagaraki K<sup>2</sup>, Androulidaki M<sup>2</sup>, Iacovella F<sup>2</sup>, Deligeorgis G<sup>2</sup>, Konstantinidis G<sup>2</sup>, Georgakilas A<sup>1,2</sup>

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PB 24 Subtractive Plasma Nano-Assembly: A New Method for Precision Control of Surface Nanotopography

**Zeniou A**<sup>1,2</sup>, Gogolides E<sup>1</sup>, Constantoudis V<sup>1</sup>

<sup>1</sup>INN, NCSR Demokritos, Athens, Greece, <sup>2</sup>Department of Physics, University of Patras, Patra, Greece

PB25 Substrate effects in selective area growth of GaN nanowires by plasma-assisted molecular beam epitaxy

Adikimenakis A<sup>1,2</sup>, Doundoulakis G<sup>1,2</sup>, Eftychis S<sup>1,2</sup>, Tsagaraki K<sup>2</sup>, Androulidaki M<sup>2</sup>, Georgakilas A<sup>1,2</sup>

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PB26 Ion beam implanted Germanium nanowires

**Echresh A**<sup>1,2</sup>, Xie Y<sup>1</sup>, Prucnal S<sup>1</sup>, Rebohle L<sup>1</sup>, Georgiev Y<sup>1,3</sup>

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PB27 Complicated micro-, nanostructure of fine crystalline spots in thin amorphous films formed by e-beam

**Kolosov V**<sup>1</sup>

<sup>1</sup>Ural Federal University, Ekaterinburg, Russian Federation

PB28 HD-DVD Based Microscale 3D Printer

**Chang T**<sup>1</sup>, Vaut L<sup>1</sup>, Voss M<sup>1</sup>, Nielsen L<sup>1</sup>, Hwu E<sup>1</sup>, Boisen A<sup>1</sup>

<sup>1</sup>The Danish National Research Foundation and Villum Foundation's Center for Intelligent Drug Delivery and Sensing Using Microcontainers and Nanomechanics (IDUN), Department of Health Technology, Technical University of Denmark, Kgs. Lyngby, Denmark



PB29 3D greyscale e-beam lithography for the template of a round shape Kinoform lens in X-ray

**Chen Z**<sup>1</sup>, Zhu J<sup>1</sup>, Wang X<sup>2</sup>, Chen Y<sup>1</sup>

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PB30 FIB-induced Origami Assembling Diverse 3D Micro/nanostructures

**Li J**, Gu C, Pan R

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PB31 Combination of two-photon 3D printing and inkjet printing for steroid coating drug-eluting implant

**Jang J**<sup>1</sup>, Tse C<sup>1</sup>, Jang J<sup>2</sup>, Choi H<sup>3,4</sup>, Brugger J<sup>1</sup>

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PB32 3D-microfabrication of pyrolytic carbon electrodes combining additive manufacturing and UV lithography

**Pan J**<sup>1</sup>, Rezaei B<sup>1</sup>, Anhøj T<sup>1</sup>, Larsen N<sup>1</sup>, Keller S<sup>1</sup>

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PB33 High-resolution 3D printed nozzles towards nanometer-thin sheet jets

**Pena G**<sup>1</sup>

<sup>1</sup>Desy, Hamburg, Germany

PB34 The high sensitive sensor of refractive index based on 3D metamaterials fabricated by ion beam irradiation

**Gu C**<sup>1</sup>, Yang H<sup>1</sup>, Li J<sup>1</sup>

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PB35 Large-scale 3D plasmonic sub-10 nm-gap arrays based on stress-induced nanocrack

**Gu C**<sup>1</sup>

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PB36 Drag Reduction Effect of Superhydrophilic/Superhydrophobic Anisotropic Surfaces Inspired by Bionic Fish Scales Micro-Nano Structures with Laser Etching

**Rong W**<sup>1</sup>

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PB37 Growth of porous nanofiber structure via layer-by-layer self-assembly under ionic effects for antireflective and antifogging coatings

**Manabe K**<sup>1,2</sup>, Shiratori S<sup>2</sup>

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PB38 Patterning and Pattern Transfer of Antireflective Nanostructures for Optical Glasses based on self-organized block copolymer masks

**Schlachter F**<sup>1</sup>, Bolten J<sup>1</sup>, Rydzek G<sup>2</sup>, Mokarian P<sup>2</sup>, Lemme M<sup>1,3</sup>

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PB39 Fabrication of robust PDMS microstructure with hydrophobic properties

**Atthi N**<sup>1</sup>, Sripumkhai W<sup>1</sup>, Pattamang P<sup>1</sup>, Thongsook O<sup>1</sup>, Suntalelat S<sup>1</sup>, Jantawong J<sup>1</sup>, Meananeatra R<sup>1</sup>, Supadech J<sup>1</sup>, Klunngien N<sup>1</sup>, Jiamsaksiri W<sup>1</sup>

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PB40 Pedestal-Shaped Microfluidic Nozzles to facilitate Contact Line Pinning during Electrohydrodynamic processing of Liquids

**Borgelink B**<sup>1</sup>, Berenschot E<sup>1</sup>, Deenen C<sup>1</sup>, Sanders R<sup>1</sup>, Tas N<sup>1</sup>, Gardeniers H<sup>1</sup>

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PB41 Fabrication of metamaterial structure with morpho butterfly effect using standing wave effect

**Nishino T**<sup>1</sup>, Tanigawa H<sup>2</sup>, Sekiguchi A<sup>2</sup>, Mayama H<sup>3</sup>

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PB42 High Fidelity and Sustainable Anti-Reflective Moth-eye Nanostructures and Large Area Sub-Wavelength Applications

**Si S**<sup>1</sup>, Hoffmann M<sup>2</sup>

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PB43 Nanoporous Ag Films for Surface-Enhanced Raman Scattering for Biosensors

Yun S<sup>1,2</sup>, Kim H<sup>1</sup>, Lee D<sup>3</sup>, Kim B<sup>4</sup>, **Cho C**<sup>1</sup>

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PB44 Silicon surface modification for covalent attachment of molecules via strain-promoted azide-alkyne click chemistry reaction

Vrettou F<sup>1,2</sup>, Petrou P<sup>2</sup>, Kakabakos S<sup>2</sup>, Argitis P<sup>3</sup>, **Chatzichristidi M**<sup>1</sup>

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PB45 Putting Cassie under Pressure

**Arunachalam S**<sup>1</sup>, Das R<sup>1</sup>, Ahmad Z<sup>1</sup>, Nauruzbayeva J<sup>1</sup>, Mishra H<sup>1</sup>

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PB46 Surface modification and microfabrication of piezoelectric fluorinated polymers by proton beam writing

Nojiri Y<sup>1</sup>, Koike Y<sup>1</sup>, Ishii Y<sup>2</sup>, **Nishikawa H**<sup>1</sup>

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PB47 Scalable Perfluorocarbon-free Gas Entrapping Surfaces/Membranes

**Ahmad Z<sup>1</sup>**, Das R<sup>1</sup>, Arunachalam S<sup>1</sup>, Buttner U<sup>1</sup>, Mishra H<sup>1</sup>

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PB48 Iodine - based etching solution for mercury cadmium telluride material

**Markowska O<sup>1</sup>**, Rutkowski J<sup>1</sup>, Ciosek J<sup>2</sup>

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PB49 Nanostructured surfaces for improvement of Laser Transfer process

**Bravo J<sup>1</sup>**, Clemente J<sup>1</sup>

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PB50 Polyelectrolyte multilayer nanosystems for biomedical application

**Szczepanowicz K<sup>1</sup>**, Kruk T<sup>1</sup>, Tomal W<sup>1</sup>, Bouzga A<sup>2</sup>, Simon C<sup>2</sup>, Warszyński P<sup>1</sup>

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PB51 Nanoporous activated carbon cloth for H<sub>2</sub> adsorption, selective CO<sub>2</sub>/CH<sub>4</sub> separation and supercapacitor energy storage

**Kostoglou N<sup>1</sup>**, Koczwara C<sup>1</sup>, Prehal C<sup>2</sup>, Babic B<sup>3</sup>, Tampaxis C<sup>4</sup>, Charalambopoulou G<sup>4</sup>, Steriotis T<sup>4</sup>, Polychronopoulou K<sup>5</sup>, Constantinides G<sup>6</sup>, Paris O<sup>1</sup>, Rebholz C<sup>7</sup>, Mitterer C<sup>1</sup>

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PB52 Dew water harvesting from micro-nanotextured surfaces

**Nioras D<sup>1</sup>**, Thomopoulos G<sup>1</sup>, Tzianou M<sup>1</sup>, Vourdas N<sup>1</sup>, Ellinas K<sup>1</sup>, Gogolides E<sup>1</sup>

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PB53 Atmospheric plasma etching of nanocomposite materials for fabrication of superhydrophobic, antireflective and antibacterial surfaces

**Dimitrakellis P<sup>1</sup>**, Kaprou G<sup>1</sup>, Mastellos D<sup>2</sup>, Tserepi A<sup>1</sup>, Gogolides E<sup>1</sup>

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PB54 Ultra-low friction droplet motion on micro-nanostructured superhydrophobic surfaces

**Sarkiris P<sup>1</sup>**, Ellinas K<sup>1</sup>, Gkiolas D<sup>2</sup>, Mathioulakis D<sup>2,3</sup>, Gogolides E<sup>1</sup>

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PB55 Antifogging and optically switching, micro-nano structured surfaces

**Tzianou M<sup>1</sup>**, Thomopoulos G<sup>1</sup>, Nioras D<sup>1</sup>, Ellinas K<sup>1</sup>, Vourdas N<sup>1</sup>, Gogolides E<sup>1</sup>

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PB56 Influence of lubricating oil viscosity on self-repairing of slippery liquid-infused porous surface

**Wang Q<sup>1</sup>**, Zhang Y<sup>1</sup>

<sup>1</sup>*Shandong University of Science and Technology, Qingdao, China*





PB57 Fabrication of functional separator via graphene oxide induced surface modification for lithium ion battery

Kim J<sup>1</sup>, Shin D<sup>1</sup>, Kim K<sup>1</sup>, Oh J<sup>1</sup>, Kim J<sup>1</sup>, **Kang S<sup>1</sup>**, Lee M<sup>1</sup>, Lee Y<sup>1</sup>

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PB58 A novel bio-inspired Triple hierarchical Superhydrophobic Surface (TriSS)

**Chung S<sup>1</sup>**, Riley C<sup>1</sup>, Taylor H<sup>1</sup>

<sup>1</sup>*University of California, Berkeley, Berkeley, United States*

PB59 Impedance spectroscopy of diamond based nanomaterials and nanostructures

**Zhang R<sup>1</sup>**, Cumont A<sup>1</sup>, Li D<sup>1</sup>, Kehagias N<sup>2</sup>, Ye H<sup>1</sup>

<sup>1</sup>*University of Leicester, Leicester, United Kingdom*, <sup>2</sup>*Catalan Institute of Nanoscience and Nanotechnology, Barcelona, Spain*

PB60 Cyclic deformation behaviour of Ti alloys by using micro-sized specimens

**Nagoshi T<sup>1</sup>**, Kishimoto<sup>1</sup>, Harada A<sup>1</sup>

<sup>1</sup>*National Institute of Advanced Industrial Science And Technology, Tsukuba, Japan*

PB61 Monolayer graphene direct transfer on silicon for Schottky photodiode fabrication

Wang Y<sup>1,2</sup>, **Ballesio A<sup>2</sup>**, Parmeggiani M<sup>2,3</sup>, Verna A<sup>2</sup>, Cocuzza M<sup>2,4</sup>, Pirri C<sup>2,3</sup>, Marasso S<sup>2,4</sup>, Yang S<sup>1</sup>

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PB62 First-principles study on different types of 2D-MoS<sub>2</sub>-based nanocatalysts for the oxygen reduction reaction

**Cao J<sup>1</sup>**

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PB63 Sensing of Hydrogen by two-dimensional doped-2H MoS<sub>2</sub> and pristine-1T MoS<sub>2</sub>: A first-principles study

**Chen J<sup>1</sup>**

<sup>1</sup>*Harbin Institute Of Technology, Harbin, China*

PB64 Dominating role of Rapid Heating rate on the Pt/rGO Nanocatalysts Synthesised by microwave assistant for Highly Enhanced Catalytic Properties

**Zhou J<sup>1</sup>**

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PB65 Formation of MoS<sub>2</sub> nanostructure arrays using anodic aluminium oxide template

**Okamoto T<sup>1</sup>**, Shimizu T<sup>1</sup>, Ito T<sup>1</sup>, Takase K<sup>2</sup>, Shingubara S<sup>1</sup>

<sup>1</sup>*Kansai University, Osaka, Japan*, <sup>2</sup>*Nihon University, Tokyo, Japan*

PB66 Combining bottom-up and top-down approaches with micro X-ray fluorescence spectroscopy for controllable fabrication of periodic ZnO nanostructures

Papageorgiou G<sup>1,2</sup>, Karydas A<sup>3</sup>, Kantarelou V<sup>3</sup>, Papageorgiou G<sup>1</sup>, **Makarona E<sup>1</sup>**

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PB67 Temperature Dependent (83-533 K) Raman Spectroscopy Analysis of MoS<sub>2</sub> Monolayers on Si/SiO<sub>2</sub> and Glass Substrates

**Öper M<sup>1</sup>**

<sup>1</sup>*Eskisehir Technical University, Eskisehir, Turkey*

PB68 Engineered bottom-up fabrication of Tin Selenide Nanostructures: ranging from 2D to 1D

**Biswas S<sup>1,2</sup>**, Davitt F<sup>1,2</sup>, Reid G<sup>3</sup>, Holmes J<sup>1,2</sup>

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PB69 Mapping of charge distribution by Kelvin probe force microscopy on graphene field effect transistor at controlled relative humidity

**Švarc V<sup>1,2</sup>**, Bartošík M<sup>1,2</sup>, Konečný M<sup>1,2</sup>, Sadílek J<sup>1</sup>, Šíkola T<sup>1,2</sup>

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PB70 Single layer reduced graphene oxide transferred by Langmuir–Blodgett and patterned by Electron Beam Lithography at wafer scale

**Martinez-Rivas A**, Rosales Hernández A, Muñoz-Aguirre N, Valdez-Pérez D

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PB71 Stacked electrophoretic deposited graphene supercapacitors

Hu L<sup>1</sup>, Zaheer M, **Liu R**

<sup>1</sup>*Fudan University, Shanghai, China*

PB72 Electronic and mechanical properties of Si and Ge nanowires applied to energy storage in Lithium batteries

**Cruz-Irisson M<sup>1</sup>**, Salazar F<sup>1</sup>, Trejo-Baños A<sup>1</sup>, Miranda Á<sup>1</sup>, Pérez L<sup>2</sup>

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PB73 Growth and characterization of nanocrystalline and nanoparticle Hafnium films

Tsigkourakos M<sup>1</sup>, Housiadas A<sup>1</sup>, Kehagias T<sup>2</sup>, Komninou P<sup>2</sup>, **Tsoukalas D<sup>1</sup>**

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PB74 pH Responsive Electroactive Peptide Nanofibers

**Erol O<sup>1</sup>**, Bakan G<sup>2</sup>, Guler M<sup>3</sup>

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PB75 Peptide Amphiphile/Carbon Nanotube Conductive Nanocomposite Hydrogels for Neural Differentiation

**Erol O<sup>1</sup>**, Arioiz I<sup>2</sup>, Tekinay A<sup>3</sup>, Güler M<sup>4</sup>

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PB76 Study of laparoscopic scope camera lens with antifouling function using metamaterial structure

**Nishino T**<sup>1</sup>, Tanigawa H<sup>2</sup>, Sekiguchi A<sup>2</sup>, Mayama h<sup>3</sup>, Hinoki A<sup>4</sup>, Uchida H<sup>4</sup>

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PB77 Study on nanoimprint technology of plant structure with super water repellent structure

**Sekiguchi A**<sup>1,2</sup>, Nishino T<sup>1</sup>, Tanigawa H<sup>1</sup>, Minami H<sup>2</sup>, Matsumoto Y<sup>2</sup>

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PB78 Optical properties of aluminum nanosquare structures

**Zisis G**<sup>1,2</sup>, Almpanis E<sup>1</sup>, Panagiotidis E<sup>1</sup>, Raptis I<sup>1,2</sup>, Papanikolaou N<sup>1</sup>

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PB79 Subwavelength transmissive surface-relief gratings for spiral phase-contrast microscopy

**Engay E**<sup>1</sup>, Vertchenko L<sup>1</sup>, Huo D<sup>1,2</sup>, Wetzel A<sup>3</sup>, Bunea A<sup>3</sup>, Lavrinenko A<sup>1</sup>

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PB80 Optical characterization of printed silver nanocluster wires

**Hokari R**<sup>1</sup>, Kurihara K<sup>1</sup>, Higurashi E<sup>1</sup>

<sup>1</sup>National Institute of Advanced Industrial Science And Technology (AIST), Tsukuba, Japan

PB81 Controlling light wavefronts with dielectric meta-surfaces

Panagiotidis E<sup>1,2</sup>, Almpanis E<sup>1,2</sup>, **Papanikolaou N**<sup>1</sup>

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PB82 Measuring the complexity of nanostructured surfaces

Arapis A<sup>1,3</sup>, **Constantoudis V**<sup>1,2</sup>

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PB83 Dip-in and measure: An alternative approach for the fabrication of metal-coated AFM probes for Tip-Enhanced Raman Spectroscopy

**Davila D**<sup>1</sup>

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PB84 The Structure and Micro-mechanical Properties of Cobalt Electrodeposited by Micro-compression Test

**Luo X**<sup>1,2</sup>, Chang T<sup>3</sup>, Sone M<sup>3</sup>

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PB85 Ultra-sensitive interferometric microscope for material analysis and defect detection

**Dümpelmann L**<sup>1</sup>, Terborg R<sup>1</sup>, Pello J<sup>1</sup>, Mannelli I<sup>1</sup>, Pruneri V<sup>1</sup>

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PB86 When should we consider the effect of tip size and shape in AFM measurements?

**Vekinis A**<sup>1</sup>, Constantoudis V<sup>2</sup>

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PB87 Investigation of Pt/C freestanding nanowires fabricated in focused electron beam deposition technology

Kunicki P<sup>1</sup>, Kwoka K<sup>1</sup>, Piasecki T<sup>1</sup>, Eberle S<sup>2</sup>, Roman C<sup>2</sup>, Hierold C<sup>2</sup>, **Gotszalk T**<sup>1</sup>

PB88 Nanometrological Characterization of CuO and NiO Nanostructures of Non-conventional Morphologies: A symmetry-based approach

**Constantoudis V**<sup>1,4</sup>, Ioannou-Sougleridis I<sup>1,3</sup>, Dimou A<sup>1,2</sup>, Ninou A<sup>1,2</sup>, Chatzichristidi M<sup>2</sup>, Makarona E<sup>1</sup>

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### Thematic area C

PC01 Analysis on the Effect of Flake thickness on Photocurrent Efficiency and Photoresponsivity of ReS<sub>2</sub> Field-effect Transistors

**Shon J**<sup>1</sup>

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PC02 Impact of Roughness of TiN bottom electrode on the forming voltage of HfO<sub>2</sub> based Resistive Memories

**Charpin-Nicolle C**<sup>1</sup>, Bonvalot M<sup>2</sup>, Sommer R<sup>1</sup>, Persico A<sup>1</sup>, Cordeau M<sup>1</sup>, Belahcen S<sup>2</sup>, Eychenne B<sup>2</sup>, Blaise P<sup>1</sup>, Martinie S<sup>1</sup>, Bernasconi S<sup>1</sup>, Jalaguier E<sup>1</sup>, Nowak E<sup>1</sup>

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PC03 Design of multi-layer single-electron circuit mimicking behavior of bubble film for solving Steiner tree problem

**Kurata N**<sup>1</sup>, Oya T<sup>1</sup>

<sup>1</sup>*Graduate School Of Engineering Science, Yokohama National University, Yokohama, Japan*

PC04 Effects of Negative Bias Stress on Electrical Characteristics of 4H-SiC MOSFETs

Lee H<sup>1</sup>, Kim T<sup>1</sup>, Seok O<sup>2</sup>, Moon J<sup>2</sup>, Bahng W<sup>2</sup>, Kang D<sup>3</sup>, Kim Y<sup>4</sup>, **Ha M**<sup>1</sup>

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PC05 Suppression of E-field crowding in gate oxide of 1.2 kV SiC trench MOSFETs using double p-base structure

Seok O<sup>1</sup>, **Ha M**<sup>2</sup>, Kang I<sup>1</sup>, Kim H<sup>1</sup>, Bahng W<sup>1</sup>

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PC06 Structural properties of porous silicon: cheap substrate for CMOS process industry

**Belaroussi Y<sup>1</sup>**, Sheen G<sup>2</sup>, Saadi A<sup>1</sup>, Nysten B<sup>3</sup>, Gabouze N<sup>4</sup>, Raskin J<sup>2</sup>

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PC07 Performance Improvement of Ge pFinFETs by Post-Fin-Fabrication Annealing

**Mizubayashi W<sup>1</sup>**, Oka H<sup>1</sup>, Mori T<sup>1</sup>, Ishikawa Y<sup>1</sup>, Samukawa S<sup>2</sup>, Endo K<sup>1</sup>

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PC08 Wet Etching of ZnO thin films for Transparent Electronic Network

**Rowlinson B<sup>1</sup>**, Ghazali N<sup>2</sup>, Akrofi J<sup>1</sup>, Sinuraya W<sup>1</sup>, Ebert M<sup>1</sup>, Reynolds J<sup>1</sup>, Chong H<sup>1</sup>

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PC 09 Electrical characterisation of Sm-, Nb-co-doped TiO<sub>2</sub> thin films

**Murayama M<sup>1,2</sup>**, Crowe I<sup>2</sup>, Hammersley S<sup>2</sup>, Markevich V<sup>2</sup>, Halsall M<sup>2</sup>, Peaker A<sup>2</sup>, Sato K<sup>1</sup>, Iwana S<sup>1</sup>, Shiraishi K<sup>1</sup>, Komuro S<sup>3</sup>, Ishii M<sup>4</sup>, Zhao X<sup>1</sup>

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PC10 Metallization technique for drain/ source electrodes for complementary organic and ZnO nanoparticle inverter circuits

**Reker J<sup>1</sup>**, Meyers T<sup>1</sup>, Vidor F<sup>2</sup>, Hilleringmann U<sup>1</sup>

<sup>1</sup>Paderborn University, Paderborn, Germany, <sup>2</sup>Universidade Federal do Rio Grande do Sul, Tramandaí, Brazil

PC11 Hybrid technology for fabrication of memristive Au/TiO<sub>2</sub>/Au devices

Illarionov G<sup>1</sup>, **Kolchanov D<sup>1</sup>**, Sergeeva E<sup>1</sup>, Vinogradov A<sup>1</sup>, Morozov M<sup>1</sup>

<sup>1</sup>Itmo University, Saint Petersburg, Russian Federation

PC12 Improved NBIS of IGZO TFTs by Novel Fluorine Doping Technique

**Jung K<sup>1</sup>**, Oh J<sup>1</sup>, Kim K<sup>1</sup>, Kim Y<sup>1</sup>

<sup>1</sup>Department of Electrical and Computer Engineering, Sungkyunkwan University, Suwon, South Korea

PC13 Ferromagnetic/Ferroelectric heterojunction-induced modulation of magnetic properties of artificial magnets

**Yamaguchi A<sup>1</sup>**, Nakamura R, Saegusa S, Yamada K, Saiki T, Nakao A, Utsumi Y, Ogasawara T, Oura M, Ohkouchi T

<sup>1</sup>University of Hyogo, Kamigori, Japan

PC14 Synaptic properties of HfO<sub>x</sub> and TaO<sub>y</sub>-based resistive switching multilayer devices

**Sakellaropoulos D<sup>1</sup>**, Bousoulas P<sup>1</sup>, Nikas G<sup>1</sup>, Tsoukalas D<sup>1</sup>

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PC15 Fabrication and Characterization of Reconfigurable Field Effect Transistors

**Khan B**<sup>1,2</sup>, Prucnal S<sup>1</sup>, Hübner R<sup>1</sup>, Erbe A<sup>1</sup>, Georgiev Y<sup>1,3</sup>

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PC16 Defect incorporation techniques for oxide-based memristive devices

**Rogozhin A**<sup>1</sup>, Miakonkikh A<sup>1</sup>, Permyakova O<sup>1,2</sup>, Rudenko K<sup>1</sup>

<sup>1</sup>Valiev Institute Of Physics And Technology Of Russian Academy of Sciences, Moscow, Russian Federation, <sup>2</sup>Moscow Institute of Physics and Technology, Dolgoprudny, Russian Federation

PC17 Hydrothermally-developed ZnO pn-homojunctions on Si for optoelectronic applications

**Papageorgiou G**<sup>1</sup>

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PC18 Experimental and modeling study of FinHEMT transistors based on AlN/GaN/AlN heterostructure

**Doundoulakis G**<sup>1,2</sup>, Adikimenakis A<sup>1,2</sup>, Stavrinidis A<sup>2</sup>, Tsagaraki K<sup>2</sup>, Androulidaki M<sup>2</sup>, Deligeorgis G<sup>2</sup>, Konstantinidis G<sup>2</sup>, Georgakilas A<sup>1,2</sup>

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PC19 Photogating-based position-sensitive detectors with organic semiconductors

Jin W, Qiu Z, Cong C, **Liu R**, Hu L<sup>1</sup>

<sup>1</sup>Fudan University, Shanghai, China

PC20 Improving Stability of Zinc Oxide Nanowire Field Effect Transistors Operating in High Ionic Phosphate Buffered Solution

**Akrofi J**<sup>1</sup>, Ebert M<sup>1</sup>, Reynolds J<sup>1</sup>, Sun K<sup>1</sup>, Hu R<sup>1</sup>, de Planque M<sup>1</sup>, Chong H<sup>1</sup>

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PC21 Red colored electrochromic device

**Song J**<sup>1</sup>, Ryu H<sup>1</sup>, Han J<sup>1</sup>, Kim T<sup>1</sup>, Sung C<sup>1</sup>, Cho S<sup>1</sup>, Kim S<sup>1</sup>, Hwang C<sup>1</sup>, Ah C<sup>1</sup>

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PC22 Effects of SDBS on Oxidation of Cu Nanopaste and its Reliability

**Kim Y**<sup>1</sup>

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PC23 Electrochemical Deposition as a Tool for Fabrication of Organic and Hybrid Photovoltaics

**Charfi O**<sup>1,3</sup>, Frericks M<sup>2,4</sup>, Cehovski M<sup>1,3</sup>, Johannes H<sup>1,3</sup>, Kowalsky W<sup>1,3,4</sup>

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PC24 Electromigration for memristive devices

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PC25 Fabrication and evaluation of synaptic device with 2-D array of MnO<sub>2</sub> nanoparticles

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PC26 Hot Electron Nanoscopy and spectroscopy (HENs): from probe design to real applications

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PC27 Fabrication of plasmonic circuits comprising waveguides, multiplexer, demultiplexer, and detector-integrated MOSFETs

**Fukuda M<sup>1</sup>**, Tonooka Y<sup>1</sup>, Hirano T<sup>1</sup>, Ota M<sup>1</sup>, Ishikawa Y<sup>1</sup>

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PC28 Grating integration technologies for edge emitting AlGaAs diode lasers

**Brox O<sup>1</sup>**, Fricke J<sup>1</sup>, Wenzel H<sup>1</sup>, Della Casa P<sup>1</sup>, Maaßdorf A<sup>1</sup>, Weyers M<sup>1</sup>, Matalla M<sup>1</sup>, Knigge A<sup>1</sup>

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PC29 A long-range plasmonic waveguide with integrated reflector for perpendicular optical interconnect applications

**Markey L<sup>1</sup>**, Vernoux C<sup>1</sup>, Weeber J<sup>1</sup>, Hammani K<sup>1</sup>, Arocas J<sup>1</sup>, Dereux A<sup>1</sup>

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PC30 Experimental and numerical investigation of biosensors plasmonic substrates induced by different fabrication techniques, e-beam, soft and hard UV-NIL

**Bryche J<sup>1,2,3</sup>**, Hamouda F<sup>2</sup>, Besbes M<sup>3</sup>, Gogol P<sup>2</sup>, Moreau J<sup>3</sup>, Lamy de la Chapelle M<sup>4</sup>, Canva M<sup>1,3</sup>, Bartenlian B<sup>2</sup>

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PC31 Fabrication of Void-free Ternary Chalcogenide Microlens Arrays Using PDMS Stamps

**Wang Z<sup>1</sup>**

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PC32 Generalized Two-Temperature Fitting Algorithm for Ultrashort Laser Heating of Metal Film and Nanoparticles to spatially and temporally study heat propagation

Bresson P<sup>1,2,3</sup>, **Bryche J<sup>1,2</sup>**, Moreau J<sup>3</sup>, Besbes M<sup>3</sup>, Karsenti P<sup>1,2</sup>, Morris D<sup>1,2</sup>, Charette P<sup>1,2</sup>, Canva M<sup>1,2,3</sup>

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PC33 Nanofabrication of fan-shaped photonic crystal spectrometers with ultrahigh resolution in SOI for the infrared range

**Feng B<sup>1</sup>**, Jiang X, Chen Y

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PC34 Refractometric Sensing Using Gradient Plasmonic Nanostructures:

Mapping Spectral Information to Spatial Patterns

**Min S<sup>1,2</sup>**, Li S<sup>1</sup>, Zhu Z<sup>1</sup>, Liang C<sup>1</sup>, Cai J<sup>1</sup>, Cheng X<sup>2</sup>, Li W<sup>1</sup>

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PC35 Bowtie Nanoapertures for Bandgap Engineering of Dilute Nitrides

**Pettinari G<sup>1</sup>**, Labbate L<sup>1</sup>, Sharma M<sup>2</sup>, Rubini S<sup>3</sup>, Polimeni A<sup>2</sup>, Felici M<sup>2</sup>

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PC36 Filament-doped thin film electrodes for high-efficiency light-emitting and detecting devices

**Kim T<sup>1</sup>**, Lee T<sup>1</sup>, Kim Y<sup>1</sup>

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PC37 FABRICATION OF METALLO-DIELECTRIC METAMATERIALS INTEGRATING NANO-IMPRINTED PMMA PILLARS

**Stomeo T<sup>1</sup>**, Casolino A<sup>2</sup>, Guido F<sup>1</sup>, Qualtieri A<sup>1</sup>, Scalora M<sup>3</sup>, D'Orazio A<sup>2</sup>, Grande M<sup>2</sup>, De Vittorio M<sup>1,4</sup>

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PC38 SILICON NITRIDE NANOANTENNAS FOR WIRELESS ON-CHIP OPTICAL NETWORKS

**Stomeo T<sup>1</sup>**, Toma A<sup>2</sup>, Qualtieri A<sup>1</sup>, Calò G<sup>3</sup>, Alam B<sup>3</sup>, Petruzzelli V<sup>3</sup>, Bellanca G<sup>4</sup>, Kaplan A<sup>4</sup>, De Vittorio M<sup>1,5</sup>

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PC39 An 1800 nm microcavity semiconductor laser

**Meng F<sup>1,2,3</sup>**, Yu H<sup>1,2,3</sup>, Zhou X<sup>1,2,3</sup>, Li Y<sup>1,2,3</sup>, Wang P<sup>1,2,3</sup>, Yang W<sup>1,2,3</sup>, Luo G<sup>1,2,3</sup>, Chen W<sup>1</sup>, Pan J<sup>1,2,3</sup>

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PC40 Fabrication and characterization of a multi-wall carbon nanotube based ultra-violet photodetector

**Glezos N<sup>1</sup>**, Pilatos G<sup>1</sup>, Kyriakis A<sup>2</sup>, Velessiotis D<sup>1</sup>, Stefanou A<sup>3</sup>

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PC41 Fabrication of SU-8 thick microstructures and integrated optics fabrication by e-beam lithography

Businaro L<sup>1</sup>, Bertani F<sup>1</sup>, De Ninno A<sup>1</sup>, Pettinari G<sup>1</sup>, Martini F<sup>1</sup>, **Gerardino A<sup>1</sup>**

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PC42 Reversed electrochromic device with blue color in neutral states

**Ah C<sup>1</sup>**, Song J<sup>1</sup>, Ryu H<sup>1</sup>, Kim T<sup>1</sup>, Cho S<sup>1</sup>, Kim S<sup>1</sup>, Cheon S<sup>1</sup>, Kim J<sup>1</sup>, Hwang C<sup>1</sup>

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PC43 Electrochromic window based on the polymer substrate with long term stability for smart auto-vehicle application

**Ryu H<sup>1</sup>**, Ah C<sup>1</sup>, Song J<sup>1</sup>, Cheon S<sup>1</sup>

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PC44 Structured light with angular momentum for excitation of near field hot spots

**Allione M<sup>1</sup>**, Giugni A<sup>1</sup>, Torre B<sup>1</sup>, Di Fabrizio E<sup>1</sup>

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PC45 Highly efficient surface micromachined infrared absorber with dual-band characteristic for thermoelectric radiation sensors

**Ihring A<sup>1</sup>**, Zieger G<sup>1</sup>, Lorenz P<sup>1</sup>, Stanca S<sup>1</sup>, Haenschke F<sup>1</sup>, Blaschke D<sup>1</sup>, Schmidt H<sup>1</sup>

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PC46 Principles for selecting quantum dots with high intrinsic quantum efficiency

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PC47 Photothermal analysis of direct-write gold nanostructures – How purity and conductivity affect the plasmonic properties?

**Shawrav M<sup>1</sup>**, Chien M<sup>1</sup>, Buch Z<sup>1</sup>, Taus P, Wanzenboeck H<sup>2</sup>, Schmid S<sup>1</sup>

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PC48 Ultrashort-pulse laser dicing of Glass-Phosphor-glass sheets

**Stroj S<sup>1</sup>**, Muendlein M<sup>2</sup>, Piredda G<sup>1</sup>, Domke M<sup>1</sup>, Plank W<sup>2</sup>

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PC49 Rapid and precise wavelength determination approach based on visually patterned integrated narrow bandpass filters

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PC50 Ce:Y3Al5O12 phosphor / polymer nanocomposite coatings on microstructures and micromachines by pulsed laser deposition

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PC51 Performance of white-light Ce:Y3Al5O12 composite emitters for visible light optical communications.

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PC52 Computer generated plasmonic holographic structures for toxin sensing

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PC53 Transferrable dielectric DBR membranes for versatile GaN-based polariton and VCSEL technology

**Amargianitakis E<sup>1,2</sup>**, Kazazis S<sup>2,3</sup>, Doundoulakis G<sup>2,3</sup>, Stavrinidis G<sup>2</sup>, Konstantinidis G<sup>2</sup>, Delamadeleine E<sup>4</sup>, Monroy E<sup>4</sup>, Pelekanos N<sup>1,2</sup>

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PC54 Nano-photonic structures for a silicon optical phased array capable of wide-angle and highly-efficient beam-forming operation

**You J<sup>1</sup>**, Yoo D<sup>1</sup>, Lee D<sup>1</sup>, Kim Y<sup>1</sup>, Yu K<sup>2</sup>, Park H<sup>2</sup>

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PC55 Transition metal-based 2D MXenes thin films for plasmonic photodetection.

**Giugni A<sup>1</sup>**, Velusamy D<sup>1</sup>, K. El-Demellawi J<sup>1</sup>, M. El-Zohry A<sup>1</sup>, Iopatin S<sup>1</sup>, N. Hedhili M<sup>1</sup>, E. Mansour A<sup>1</sup>, Di Fabrizio E<sup>1</sup>, F. Mohammed O<sup>1</sup>, Alshareef H<sup>1</sup>

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PC56 Ultra miniaturized InterDigitated Electrodes as a platform for sensing applications

Wang Z<sup>1</sup>, Syed A<sup>1</sup>, Bhattacharya S<sup>1</sup>, Chen X<sup>1</sup>, Buttner U<sup>1</sup>, Ioardache G<sup>1</sup>, Valamontes E<sup>2</sup>, **Raptis I<sup>1</sup>**, Oikonomou P<sup>3</sup>, Botsialas A<sup>3</sup>, Sanopoulou M<sup>3</sup>

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PC57 A novel contact-enhanced low-g inertial switch with low-stiffness fixed electrode

**Zhai K<sup>1</sup>**, Du L, Han M

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PC58 Flow sensor and stent integration for evaluating in-situ breathing property at airway in experimental animal

**Noma H<sup>1</sup>**, Hasegawa Y<sup>1</sup>, Taniguchi K<sup>1</sup>, Matsushima M<sup>2</sup>, Kawabe T<sup>2</sup>, Shikida M<sup>1</sup>

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PC59 Processing of piezotronic microstrain sensors on flexible substrates

**Girod S<sup>1</sup>**, Joly R<sup>1,2</sup>, Adjeroud N<sup>1</sup>, Menguelti K<sup>1</sup>, El Hachemi M<sup>1</sup>, Grysan P<sup>1</sup>, Klein S<sup>1</sup>, Polesel J<sup>1</sup>

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PC60 Integration of carbon nanotube-based sensors to a flip-chip package for micro-strain detection in microelectronic package

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PC61 Ultra-high sensitive humidity detection using surface enhanced microcantilevers

**Balasubramanian S<sup>1</sup>**, Prabakar K<sup>1</sup>, Polaki S<sup>1</sup>

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PC62 A thermal flow sensor and its signal processing circuit integration onto flexible copper on polyimide substrate

**Kato A**<sup>1</sup>, Fujitsuna I<sup>1</sup>, Hasegawa Y<sup>1</sup>, Taniguchi K<sup>1</sup>, Matsushima M<sup>2</sup>, Kawabe T<sup>2</sup>, Shikida M<sup>1</sup>

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PC63 Nanomaterial based Flow-sensor for easy microfluidic chip integration

**Skotadis E**<sup>1</sup>, Patsiouras L<sup>1</sup>, Vargkas E<sup>1</sup>, Aslanidis E<sup>1</sup>, Kaprou G<sup>2</sup>, Tserepi A<sup>2</sup>, Tsoukalas D<sup>1</sup>

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PC64 Design and performance analysis of a microgravity accelerometer with quasi-zero stiffness characteristic

Duan Y<sup>1</sup>, Wei X<sup>1</sup>, Zhao M<sup>1</sup>, Ren Z<sup>1</sup>, Zhao H<sup>1</sup>, **Ren J**<sup>2</sup>

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PC65 Thermal flow sensor operated under 40 degrees Celsius for controlling small dosing rate in drip infusion system

**Shimohira C**<sup>1</sup>, Hasegawa Y<sup>1</sup>, Taniguchi K<sup>1</sup>, Matsushima M<sup>2</sup>, Kawabe T<sup>2</sup>, Shikida M<sup>1</sup>

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PC66 Piezoresistive strain sensors based on aqueous dispersion of graphene nanoplatelets

**Tsouti V**<sup>1</sup>, Kekou V<sup>1</sup>, Sanopoulou M<sup>1</sup>, Chatzandroulis S<sup>1</sup>

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PC67 Mode-Matched Single-Crystal Lithium Niobate Disk Resonator for High-Performance Gyroscope

**Obitani K**<sup>1</sup>, Tsuchiya T<sup>1</sup>, Araya K<sup>2</sup>, Yachi M<sup>3</sup>

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PC68 Ceramic membrane based integrated systems for power generation and sensing

**Alayo N**<sup>1</sup>, Bianchini M<sup>1</sup>, Chiabrera F<sup>1</sup>, Garbayo I<sup>1</sup>, Salleras M<sup>3</sup>, Fonseca L<sup>3</sup>, Tarancón A<sup>1,2</sup>

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PC69 A Highly Sensitive Pressure Sensor Based on Carbon Nanotubes and Polymer Composite

da Costa T<sup>1</sup>, **Choi J**<sup>1</sup>

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PC70 A 3D Printed Thermal Flow Sensor for Spirometry Applications

**Koutsis T**<sup>1</sup>, Psyrris A<sup>1</sup>, Kaltsas G<sup>1</sup>

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PC71 Electrochemical hydrogen sensors with wide detection ranges for hydrogen fuel cell vehicle application

**Jung S**<sup>1</sup>, Jo Y<sup>1</sup>, Yoon H<sup>1</sup>, Lee S<sup>1</sup>

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PC72 Transparent Piezoelectric Ultrasonic Transducer for Optical Registered Photoacoustic Imaging

**Liu Y**<sup>1</sup>, Lin F<sup>1</sup>, Chen L<sup>1</sup>, Wang Y<sup>1</sup>, Huang C<sup>1</sup>

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PC73 Polymeric seed layer as a simple approach for nanostructuring of Ga-doped ZnO films for flexible piezoelectric energy harvesting

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PC74 An approach for nanostructuring of piezoelectric materials by template-assisted growth in porous aluminium oxide

**Tsanev T<sup>1</sup>**, Aleksandrova M<sup>1</sup>, Tzaneva B<sup>2</sup>, Videkov V<sup>1</sup>

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PC75 A novel polymer super capacitor with high aspect ratio 3D printed sub-millimetres structures

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PC76 Ionic insulating polymer embedded light harvester for morphological control of perovskite solar cells

Lee S<sup>1</sup>, Yoon S<sup>1</sup>, Jun R<sup>1</sup>, Ha M<sup>2</sup>, Kim Y<sup>3</sup>, **Kang D<sup>1</sup>**

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PC77 Fabrication of CIGS micro-concentrator solar cell devices

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PC78 Nanoimprint Lithography for the Creation of Solar Thermal Absorbers

**Mitteramskogler T<sup>1</sup>**, Haslinger M<sup>1</sup>, Wennberg A<sup>2</sup>, Martínez I<sup>2</sup>, Muehlberger M<sup>1</sup>, Krause M<sup>3</sup>, Guillén E<sup>1</sup>

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PC79 Broadband absorption in arrays of subwavelength trumpet non-imaging light concentrators

**Prajapati A<sup>1</sup>**, Chauhan A<sup>1</sup>, Keizman D<sup>1</sup>, Shalev G<sup>1,2</sup>

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PC80 Nanostructured passivation layers for improved efficiency of CIGS solar cells

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PC81 Development of a novel low frequency magnetic eccentric pendulum vibration energy harvester for wireless oceanic nodes

**Zhong S<sup>1,2</sup>**, Cao J<sup>1,2</sup>, Chen J<sup>1</sup>, Zhou J<sup>1</sup>, Zhang L<sup>1</sup>, Liu J<sup>1</sup>

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PC82 Demonstration of high temperature solid oxide fuel cell element based on nanohomogeneous yttria-stabilized zirconia microtubes

**Kelp G<sup>1</sup>**, Nölvak A<sup>1</sup>, Vanetsev A<sup>1,2</sup>, Nurk G<sup>3</sup>, Tamm A<sup>1</sup>, Tätte T<sup>1</sup>

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PC83 Influence of bi-functional catalyst nanostructures morphology on performances for rechargeable zinc-air battery

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PC84 Surface modification of triboelectric nanogenerators with ZnO nanoparticles

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PC85 Highly-efficient and stable organic solar cells using a zinc tungstate-mixed ZnO cathode interfacial layer

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PC86 A micro-structured micro capacitor on Si substrate having large capacitance for an integrated energy harvester

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PC87 Analysis on vertically aligned ZnO Nanorods as composite mechanical springs for an elastic and steady piezoelectric behavior at multiple frequencies

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PC88 Tuning of imprinting stamps for the fabrication of nano-electrodes for electrochemical CO<sub>2</sub> reduction

**Golibrzuch M<sup>1</sup>**, Maier T<sup>1</sup>, Krischer K<sup>1</sup>, Becherer M<sup>1</sup>

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PC89 Shunt resistance effects in GaAs/InGaAs core-shell nanowire solar cells

**Androulidaki M<sup>1</sup>**, Manidakis E<sup>1,2</sup>, Darivianaki E<sup>2</sup>, Hatzopoulos Z<sup>2</sup>, Tan S<sup>3,4</sup>, PELEKANOS N<sup>1,2</sup>

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PC90 One-Day Fast-Prototyping Process for Functionalized Membrane Array on Flexible Substrate

**Delhaye T<sup>1</sup>**, Ge C<sup>2</sup>, Francis L<sup>1</sup>, Cretu E<sup>2</sup>, Flandre D<sup>1</sup>

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PC91 Development of novel hydrogels using single-walled carbon nanotubes and phthalocyanine derivatives

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PC92 Beat-to-beat pulse wave velocity estimation by soft and flexible Aluminium Nitride based piezoelectric sensor

**Natta L<sup>1</sup>**, Mastronardi V<sup>1</sup>, Lombardi P<sup>3</sup>, Guido F<sup>1,4</sup>, Algieri L<sup>1,4</sup>, Ciccirillo F<sup>5</sup>, Colonna G<sup>5</sup>, Di Rienzo M<sup>3</sup>, Quattieri A<sup>1</sup>, De Vittorio M<sup>1,2</sup>

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PC93 Investigation of laser-ablated flexible graphene film forming temperature sensors

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PC94 Accumulated fluence methodology for selective metallic thin-film ablation from susceptible polymer substrate using femtosecond laser pulses

**von der Heide C**<sup>1</sup>, Dietzel A<sup>1</sup>

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PC95 Polyester Textile Based Graphene Pressure Sensor

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PC96 Fabrication of stretchable supercapacitor using MnO<sub>2</sub> nanoparticles and carbon nanotube on textile

Yun T<sup>1</sup>, **Hyun S**<sup>1</sup>, Woo C<sup>1</sup>

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PC97 FABRICATION OF A FLEXIBLE MEANDER ANTENNA FOR SAW REMOTE SENSING APPLICATIONS

**Lamanna L**<sup>1,2</sup>, Piro L<sup>1,2</sup>, Marasco I<sup>3</sup>, Niro G<sup>3</sup>, Guido F<sup>1</sup>, Algieri L<sup>1</sup>, Mastronardi V<sup>1</sup>, Quattieri A<sup>1</sup>, Rizzi F<sup>1</sup>, De Vittorio M<sup>1,2</sup>, D'Orazio A<sup>3</sup>, Grande M<sup>3</sup>

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PC98 Flash reduction of graphene oxide as cost effective fabrication technique for flexible micro-supercapacitors

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PC99 Ni-P/PET Fiber Prepared by Supercritical CO<sub>2</sub> Catalyzation for Wearable Device Applications

**Tokuoka K**<sup>1</sup>, Chiu W<sup>3</sup>, Chen C<sup>1</sup>, Chang T<sup>1</sup>, Saji A<sup>2</sup>, Kurosu H<sup>2</sup>, Sone M<sup>1</sup>

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PC100 Aiming to improve gate controllability of paper transistors using carbon-nanotube-composite papers by using ionic liquid

**Iijima R**<sup>1</sup>, Oya T<sup>1</sup>

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PC101 Copper micro-electrode fabrication using laser printing and laser sintering processes for on-chip antennas on flexible integrated circuits

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PC102 Relative Speed Control in Roll-to-Roll Gravure Printing for Printed Electronics and Wearable Applications

**Shan X**<sup>1</sup>, Feng W<sup>1</sup>, Lok B<sup>1</sup>

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PC103 The Flexible/Stretchable Interconnection and TFT for AM Micro LED Display

**Koo J<sup>1</sup>**, Park C<sup>1</sup>, Yang J<sup>1</sup>, Cho S<sup>1</sup>

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PC104 Fabrication of Nanopatterned PVDF-HFP Film Based Flexible Pressure Sensors

Kim J<sup>1</sup>, Lim H<sup>1</sup>, **Lee J<sup>1</sup>**

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PC105 Multi-parameter paper sensor fabricated by inkjet-printed silver nanoparticle and PEDOT:PSS

**Barpakos D<sup>1,2</sup>**, Tsamis C<sup>2</sup>, Kaltsas G<sup>1</sup>

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PC106 Patterned Lighting of Electroluminescence Film by Dynamic Laser Focusing

**F W<sup>1</sup>**, Shan X<sup>1</sup>

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PC107 Ultrafast Laser Ablation of Flexible Graphene Micro-Heater for Wearable Application

**Wang C<sup>1</sup>**, Xiao M, Chang T

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PC108 Fabrication and Evaluation of Au-Cu Alloy 3D Structures toward MEMS Movable Components

**Nitta K<sup>1</sup>**, Tang H<sup>1</sup>, Chen C<sup>1</sup>, Chang T<sup>1</sup>, Yamane D<sup>1</sup>, Iida S<sup>2</sup>, Machida K<sup>1</sup>, Ito H<sup>1</sup>, Masu K<sup>1</sup>, Sone M<sup>1</sup>

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PC109 Experimental Investigation of Quartz Machining Using Magnetohydrodynamic (MHD) Assisted TW-ECDM Process

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PC110 Polyimide foils with Au conductor traces for subretinal implants with long-term stability comparable to LCP

Rudorf R<sup>2</sup>, Drzyzga A<sup>2</sup>, Kokelmann M<sup>2</sup>, **Burkhardt C<sup>1</sup>**

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PC111 An integrated fabrication method of micro RF coaxial transmitter on metal substrate combining positive and negative photoresist processes

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PC112 Effects of Fixed End Structure on Temperature Dependence of Structure Stability of Ti/Au Micro-Cantilever toward MEMS Application

**Watanabe H<sup>1</sup>**, Sone M<sup>1</sup>, Chang T<sup>1</sup>, Chen C<sup>1</sup>, Iida S<sup>2</sup>, Yamane D<sup>1</sup>, Ito H<sup>1</sup>, Machida K<sup>1</sup>, Masu K<sup>1</sup>

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PC113 Sample Geometry Effect on Mechanical Property of Electrodeposited Gold Evaluated by Micro-Bending Test

**Suzuki K<sup>1</sup>**, Sone M<sup>1</sup>, Hashigata K<sup>1</sup>, Chen <sup>1</sup>, Nagoshi T<sup>2</sup>, Chang T<sup>1</sup>, Yamane D<sup>1</sup>, Ito H<sup>1</sup>, Machida K<sup>1</sup>, Masu K

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PC114 High Efficient and Cost Effective Hybrid Aluminium Nitride Substrates for Power LED Modules

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PC115 Ultra-smooth Chip Scale Sensors for Adaptive Airfoil Control

**Haus J<sup>1</sup>**, Schwerter M<sup>1</sup>, Gäding M<sup>1</sup>, Leester-Schädel M<sup>1</sup>, Dietzel A<sup>1</sup>

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PC116 A Novel High-performance RF-MEMS Resonator with Multiple Mode Generations

Chen Z<sup>1,2,3</sup>, Kan X<sup>1,2,3</sup>, Wang T<sup>1,2,3</sup>, Yuan Q<sup>1,2</sup>, **Yang J<sup>1,2,3</sup>**, Yang F<sup>1,2,3</sup>

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PC117 A facile method of direct stiffness measurement for AFM cantilevers

**Avilovas L<sup>1</sup>**

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PC118 3D tactile microprobe with isotropic kinematics for industrial micro metrology.

**Metz D<sup>1</sup>**, Jantzen S<sup>2</sup>, Kniel K<sup>2</sup>, Stein M<sup>2</sup>, Dietzel A<sup>1</sup>

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PC119 In-situ TEM fatigue testing system for nanomaterials using an electrostatic actuator

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PC120 Electrodeposition of TiO<sub>2</sub> Nanoparticle Reinforced High Strength Au Film for MEMS Applications

**Chien Y<sup>1</sup>**, Chang T<sup>1</sup>, Chen C<sup>1</sup>, Yamane D<sup>1</sup>, Ito H<sup>1</sup>, Machida K<sup>1</sup>, Masu K<sup>1</sup>, Sone M<sup>1</sup>

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PC121 Design, Fabrication and Characterization of Piezoelectric Cantilever MEMS for Underwater Application

**Abdul B<sup>1,2</sup>**, Mastronardi V<sup>1</sup>, Quattieri A<sup>1</sup>, Guido F<sup>1</sup>, Algieri L<sup>1</sup>, Rizzi F<sup>1</sup>, De Vittorio M<sup>1,2</sup>

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PC122 Self-Aligned, High Resolution Conductive Lines for Micro Heaters Fabrication

**Di Pietro V<sup>1</sup>**

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PC123 Frequency control of bifurcation in the electrically coupled micromechanical resonator

**Tian L<sup>2</sup>**, Wei X<sup>1</sup>, Pu D<sup>1</sup>, Jiang Z<sup>1</sup>, Ren J<sup>3</sup>

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PC124 Dynamic performance of symmetric and asymmetric anti-spring structures

**Gao Y<sup>1</sup>**, Zhang H<sup>1</sup>, Jiang Z<sup>1</sup>, Wei X<sup>1</sup>

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PC125 Adjustment method of MEMS dual-cantilever deflection using plastic deformation of metal thin film by thermal annealing

**Tanaka M<sup>1</sup>**

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PC126 Fabrication and characterization of arrayed micro-structure with Ni film springs and photolithographed SU-8 micro-pins for Tactile Display Device

Tuji K<sup>1</sup>, Xu J<sup>1</sup>, Abe K<sup>2</sup>, Shimizu T<sup>2</sup>, Hasegawa H<sup>2</sup>, **Mineta T<sup>1</sup>**

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PC127 Large scanning range optical phased array with a compact and simple optical antenna

**Wang P<sup>1,2,3</sup>**, Luo G<sup>1,2,3</sup>, Li Y<sup>1,2,3</sup>, Yang W<sup>1,2,3</sup>, Yu H<sup>1,2,3</sup>, Zhou X<sup>1,2,3</sup>, Zhang Y<sup>1,2,3</sup>, Pan J<sup>1,2,3</sup>

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PC128 Nonlinear Nanomechanical Mass Spectrometry at the Single-Nanoparticle Level

Yuksel M<sup>1</sup>, Orhan E<sup>1</sup>, Yanik C<sup>2</sup>, Ari A<sup>1</sup>, Demir A<sup>4</sup>, Karakurt A<sup>1</sup>, **Erdogan R<sup>1</sup>**, Hanay M<sup>1,3</sup>

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PC129 Full Electrostatic Control of Nanomechanical Buckling

Erbil S<sup>1</sup>, Hatipoglu U<sup>1</sup>, Yanik C<sup>2</sup>, Ghavami M<sup>1</sup>, Ari A<sup>1</sup>, Yuksel M<sup>1</sup>, **Demiralp B<sup>1</sup>**, Hanay M<sup>1,3</sup>

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PC130 Manipulation of micron sized silica particles

**Jimidar I<sup>1,2</sup>**, Berneman N<sup>1,2</sup>, de Boer M<sup>1</sup>, Vanderheyden Y<sup>2</sup>, Gardeniers H<sup>1</sup>, Desmet G<sup>2</sup>

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PC131 Electromagnetical Cantilevers For Force Spectroscopy Metrology-Study Of Electrothermal And Electromagnetic Actuation Efficiency

Pruchnik B<sup>1</sup>, **Piasecki T<sup>1</sup>**, Orłowska K<sup>1</sup>, Majstrzyk W<sup>1</sup>, Sierakowski A<sup>2</sup>, Gotszalk T<sup>1</sup>

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PC132

Towards Fabrication of Functionalised Polymer membranes

**Prochukhan N<sup>1</sup>**, Keegan A<sup>1</sup>, Morris M<sup>1</sup>

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PC133 Parallel Tensile-mode Testing Of Single Crystal Silicon By Specimen Integrating Shear Strain Gauge

**Yamazaki Y<sup>1</sup>**, Hirai Y<sup>1</sup>, Tsuchiya T<sup>1</sup>, Tabata O<sup>1</sup>

<sup>1</sup>Kyoto University, Kyoto, Japan

PC134 Highly-doped in-plane Si electrodes embedded between free-hanging microfluidic channels

**Zhao Y<sup>1</sup>**

<sup>1</sup>University of Twente, Enschede, Netherlands

PC135 Novel Hybrid Silicon Microprobes for High-density Neural Activity Recording

**Novais A<sup>1</sup>**, Calaza C<sup>1</sup>, Gaspar J<sup>1</sup>

<sup>1</sup>International Nanotechnology Laboratory, Braga, Portugal

PC136 Impedance spectroscopy of electrostatically driven MEMS resonators

**Kwoka K<sup>1</sup>**, Piasecki T<sup>1</sup>, Orłowska K<sup>1</sup>, Szymanowska P<sup>1</sup>, Sierakowski A<sup>2</sup>, Gotszalk T<sup>1</sup>

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PC137 Fire smoke detection with quartz crystal microbalance (QCM) oscillation sensor

**Yoon S<sup>1</sup>**, Hong D, Kang H, Kim W, Seong W, Lee K

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PC138 New method of monitoring the intrinsic strain during electrochemical deposition process using rosette gauge

**Belharet D<sup>1</sup>**

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PC139 Thermally Activated Discharging Mechanisms in SiNx Films with Embedded CNTs for RF MEMS Capacitive Switches

**Koutsourelis M<sup>1</sup>**, Stavrinidis G<sup>2</sup>, Birmpiliotis D<sup>1</sup>, Konstantinidis G<sup>2</sup>, Papaioannou G<sup>1</sup>

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PC140 INNOVATION-EL: The National Nanotechnology Infrastructure Network of Greece

Kilikoglou V<sup>1</sup>, Komninou P<sup>3</sup>, Anastasiadis S<sup>2</sup>, Kamitsos E<sup>4</sup>, Tsoukalas D<sup>5</sup>, Bourganos V<sup>6</sup>, Karakasidis M<sup>7</sup>,

**Makarona E<sup>1</sup>**, Holiastou M<sup>8</sup>

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PC141 Towards a Lab-on-Chip micro-calorimeter based on a fully-integrated CMOS-MEMS oscillator

**Perelló-Roig R<sup>1</sup>**, Verd J<sup>1</sup>, Segura J<sup>1</sup>

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PC142 Large area Silicon-energy filters for ion implantation

**Steinbach T<sup>1</sup>**, Csato C<sup>2</sup>, Krippendorf F<sup>2</sup>, Letzkus F<sup>1</sup>, Rüb M<sup>2,3</sup>, Burghartz J<sup>1</sup>

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PC143 Influence of the features deformation caused by cutting forces in micro end milling process for thin-walled copper electrode parts

**Ha S<sup>1</sup>**, Park J<sup>1</sup>, Yoon G<sup>1</sup>, Jung T<sup>2</sup>

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PC144 Improvement in IR absorption and thermal properties of a-Si based  $\mu$ -bolometers by adopting the resistive hall-array pattern

Kim T<sup>1</sup>, Oh J<sup>1</sup>, Park J<sup>1</sup>, Jung J<sup>2</sup>, Hong D<sup>1</sup>, Kim H<sup>1</sup>, **Lee J<sup>1</sup>**

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PC145 Spectrum decomposition analysis of light-emitting diode with designed electrode and InGaN/GaN quantum wells as an active region

**Nishidate Y<sup>1</sup>**, Khmyrova I<sup>1</sup>, Kholopova Y<sup>2</sup>, Kovalchuk A<sup>2</sup>, Zemlyakov V<sup>3</sup>, Maximov I<sup>4</sup>, Shapoval S<sup>2</sup>

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PC146 micro-Coriolis mass flow sensor with improved flow sensitivity through modelling of the sensor

**Schut T<sup>1</sup>**, Wiegerink R<sup>1</sup>, Lötters J<sup>1,2</sup>

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PC147 FEM simulation for 3D self-folding using thermoplastic reflow of polymer actuators

**Zhang R<sup>1</sup>**, Richter A<sup>1</sup>, Kirchner R<sup>1</sup>

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PC148 A stochastic model with IoT gas detector based on AI-enabled technique for predicting particulate matters of 2.5  $\mu$ m and 10  $\mu$ m

**Lee Y<sup>1</sup>**, Chang T<sup>2</sup>

<sup>1</sup>National Defense University, Taoyuan, Taiwan, <sup>2</sup>National Taiwan Normal University, Taipei, Taiwan

PC149 A Novel Method for Depositing Patterned BCB using Spotter for Low Temperature Wafer Level Bonding

**Jain S<sup>1</sup>**, Mielnik M<sup>1</sup>, Moe S<sup>1</sup>

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PC150 Optimization of solder paste laser printing parameters for the assembly of electronic devices

**Makrygianni M<sup>1</sup>**, Margariti E<sup>1</sup>, Oikonomidis N<sup>2</sup>, Spandonidis C<sup>2</sup>, Zergioti I<sup>1</sup>

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PC151 Au/Ti double-layered films for bonding and residual gas gettering in MEMS encapsulation  
**Kurashima Y**<sup>1</sup>, Matsumae T<sup>1</sup>, Higurashi E<sup>1</sup>, Yanagimachi S<sup>1</sup>, Takagi H<sup>1</sup>, Sudiarmanto<sup>2</sup>, Kondoh E<sup>2</sup>  
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PC152 Electrical connection enhancement of conductive 3D printed parts based on PEDOT:PSS by metal plating  
**Bertana V**<sup>1</sup>, Scordo G<sup>1</sup>, Romano S<sup>1</sup>, Nicosia C<sup>1</sup>, Marasso S<sup>1,2</sup>, Cocuzza M<sup>1,2</sup>, Ferrero S<sup>1</sup>, Pirri C<sup>1,3</sup>, Scaltrito L<sup>1</sup>  
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PC153 Reactive Bonding by Integrated Nanostructured Al/Pd Multilayer Thin Film Systems for MEMS Packaging Applications  
**Bourim E**<sup>1</sup>, Kang I<sup>1</sup>, Kim H<sup>1</sup>  
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PC154 On-chip beta spectrometry with absorber-embedded radionuclides  
**Krzysteczko P**<sup>1</sup>, Paulsen M<sup>1</sup>, Bockhorn L<sup>2</sup>, Aßmann C<sup>1</sup>, Bork E<sup>1</sup>, Beyer J<sup>1</sup>  
<sup>1</sup>PTB, Berlin, Germany, <sup>2</sup>PTB, Braunschweig, Germany

PC155 Basic study of position measurement system at tip of surgical forceps which is sensor fusion type  
**Nishino T**<sup>1</sup>, Tanigawa H<sup>2</sup>, Higo Y<sup>2</sup>, Furutsuka T<sup>2</sup>, Deie K<sup>3</sup>, Ishimaru T<sup>4</sup>, Iwanaka T<sup>4</sup>  
<sup>1</sup>Ritsumeikan University, Kusatsu, Shiga, Japan, <sup>2</sup>The Research Organization of Science and Technology, Ritsumeikan University, Kusatsu, Shiga, Japan, <sup>3</sup>Kitasato University Children's Surgery, Kanagawa, Kitasato, Japan, <sup>4</sup>Saitama Children's Medical Center Surgery, Saitama, Saitama-Shintoshin, Japan

PC156 Room-temperature direct bonding of LiTaO<sub>3</sub> and SiC wafers for future SAW filter  
**Takigawa R**<sup>1</sup>  
<sup>1</sup>Kyushu University, Nishi-ku Fukuoka, Japan

#### Thematic area D

PD01 Fabrication of free-hanging tubes for a high flow micro Coriolis mass flow meter  
**Groenesteijn J**<sup>1</sup>, de Boer M<sup>2</sup>, van Putten J<sup>1</sup>, Sparreboom W<sup>1</sup>, Lotters J, Wiegink R<sup>2</sup>  
<sup>1</sup>Bronkhorst High-Tech BV, Ruurlo, Netherlands, <sup>2</sup>MESA+ Institute of Nanotechnology, University of Twente, Enschede, Netherlands

PD02 A nanofluidic concentrator integrating long vertical nanotrenchetched with an optimized ICP-RIE process  
**Ngom S**<sup>1</sup>, Delapierre F<sup>2</sup>, GUILLET S<sup>1</sup>, Cambil E<sup>1</sup>, Florès-Galicia F<sup>1</sup>, Gamby J<sup>1</sup>, Pallandre A<sup>3</sup>, Le Potier I<sup>1</sup>, Haghiri-Gosnet A<sup>1</sup>  
<sup>1</sup>C2N - CNRS - U-Psud, Palaiseau, France, <sup>2</sup>SPEC - CEA, Saclay, FRANCE, <sup>3</sup>LCP - CNRS-Université Paris-Sud, Orsay, FRANCE



PD03 Performance of the electrochemical microactuator with a millisecond response time

**Uvarov I<sup>1</sup>**, Melenev A<sup>1</sup>, Lokhanin M<sup>2</sup>, Naumov V<sup>1</sup>, Svetovoy V<sup>3,4</sup>

<sup>1</sup>Valiev Institute Of Physics And Technology Of Russian Academy Of Sciences, Yaroslavl Branch, Yaroslavl, Russian Federation, <sup>2</sup>P.G. Demidov Yaroslavl State University, Yaroslavl, Russian Federation, <sup>3</sup>Zernike Institute for Advanced Materials, University of Groningen, Groningen, The Netherlands, <sup>4</sup>A.N. Frumkin Institute of Physical Chemistry and Electrochemistry RAS, Moscow, Russian Federation

PD04 Porous polymer coatings on SS microneedles (MNs) for glucose-responsive insulin delivery

**Ullah A<sup>1</sup>**

<sup>1</sup>Kyungpook National University, Daegu, South Korea

PD05 Dielectrophoretic trapping of moving liquid marbles on free water surface

**Jin J<sup>1</sup>**, Ooi C<sup>1</sup>, Sreejith K<sup>1</sup>, Dao D<sup>1,2</sup>, Nguyen N<sup>1</sup>

<sup>1</sup>Queensland Micro- and Nanotechnology Centre, Griffith University, Brisbane, Australia, <sup>2</sup>School of Engineering and Built

PD06 Investigation of Squeeze Flow Problem on a Nano-Scale

**Verloy S<sup>1,2</sup>**, Gardeniers H<sup>1</sup>, Desmet G<sup>2</sup>

<sup>1</sup>University Of Twente, Enschede, Netherlands, <sup>2</sup>Vrije Universiteit Brussel, Brussel, Belgium

PD07 Membrane integration for glass Organ-on-a-Chip systems using a reversible sealing technique

**Koch E<sup>1</sup>**, Dietzel A<sup>1</sup>

<sup>1</sup>Institute of Microtechnology, Tu Braunschweig, Braunschweig, Germany

PD08 Biomimetic membranes manipulation in microfluidics: towards on-chip micropipette

**Elias M<sup>1,2,3</sup>**, Dutoya A<sup>1</sup>, Laborde A<sup>1</sup>, Lecestre A<sup>1</sup>, Montis C<sup>3</sup>, Berti D<sup>3</sup>, Joseph P<sup>1</sup>

<sup>1</sup>Laas Cnrs, Toulouse, France, <sup>2</sup>Paul Sabatier University, Toulouse, France, <sup>3</sup>University of Florence, Florence, Italy

PD09 Polymer supports for serial protein crystallography at X-ray free electron lasers

**Padeste C<sup>1</sup>**, Martiel I<sup>1</sup>, Karpik A<sup>1,2</sup>, Kristiansen P<sup>2,1</sup>

<sup>1</sup>Paul Scherrer Institut, Villigen PSI, Switzerland, <sup>2</sup>FHNW University of Applied Sciences and Arts Northwestern Switzerland, Windisch, Switzerland

PD10 PID temperature control system based Microfluidic PCR chip for genetic analysis

**Kim H<sup>1</sup>**, Shin H<sup>2</sup>, Kim Y<sup>1</sup>

<sup>1</sup>Department of Electrical and Computer Engineering, Sungkyunkwan University, Suwon, South Korea, <sup>2</sup>Corporate R&D, LG Chem., , South Korea

PD11 UV lithography based fabrication of SU-8 microneedles for drug delivery applications

**Ajay A<sup>1</sup>**, DasGupta A<sup>1</sup>, Chatterjee D<sup>1</sup>

<sup>1</sup>Indian Institute Of Technology Madras, Chennai, India

.PD12 Rapid prototyping of a MEMS-based droplet dispenser using 3D printing

Maziz A<sup>1</sup>, Courson R<sup>1</sup>, Mesnilgrente F<sup>1</sup>, Bidal E<sup>2</sup>, Leroy L<sup>2</sup>, Sojic N<sup>3</sup>, Malaquin L<sup>1</sup>, **Leichle T<sup>1</sup>**

<sup>1</sup>LAAS-CNRS, Toulouse, France, <sup>2</sup>INAC-SyMMES, Grenoble, France, <sup>3</sup>ISM, Pessac, France

PD13 Femtosecond Laser structuring with online control of polarization for advanced and buried microfluidic structures.

**Meinen S<sup>1,2</sup>**, Kottmeier J<sup>1,2</sup>, Brinkmann S<sup>1,2</sup>, Dietzel A<sup>1,2</sup>

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PD14 Open Microchannels filled with Nanoparticle Inks

**Mitteramskogler T<sup>1</sup>**, Di Pietro V<sup>1</sup>, Ausserhuber H<sup>1</sup>, Muehlberger M<sup>1</sup>

<sup>1</sup>Profactor GmbH, Steyr-Gleink, Austria

PD15 Soft X-Ray Compatible Liquid Cells

Kanwal A<sup>1</sup>, Ilic R<sup>1</sup>, Mukherjee S<sup>1</sup>, Gann E<sup>1</sup>, Wang C<sup>2</sup>, Cordova I<sup>2</sup>, DeLongchamp D<sup>1</sup>, **Liddle J<sup>1</sup>**

<sup>1</sup>National Institute of Standards and Technology, Gaithersburg, USA, <sup>2</sup>Lawrence Berkeley National Laboratory, Berkeley, USA

PD16 Parallel Ejection of pL-Droplets with Pneumatic Valve Integrated Micronozzle Array

Pandey G<sup>1</sup>, Bhardwaj R<sup>1</sup>, Tanagi K<sup>1</sup>, Kage A<sup>1</sup>, Shibata T<sup>1</sup>, **Nagai M<sup>1</sup>**

<sup>1</sup>Toyohashi University of Technology, Toyohashi, Japan

PD17 High reversible contactless electrowetting by using superhydrophobic layer of FDTS

**Ahmadi Zeidabadi M<sup>1</sup>**, Bermejo S<sup>1</sup>, LU J<sup>2</sup>, Castañer L<sup>1</sup>

<sup>1</sup>Grupo de Micro y Nano Tecnologías (MNT), Departamento de Ingeniería Electrónica, Universitat Politècnica de Catalunya (UPC), Barcelona, Spain, <sup>2</sup>Research Center for Ubiquitous MEMS and Micro Engineering (UMEMSME) National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Japan

PD18 Open and Closed Microfluidic Wall Modifications and in-situ Reactions via a new Atmospheric Plasma Apparatus

**Zeniou A<sup>1</sup>**, Kefallinou D<sup>1</sup>, Vourdas N<sup>1</sup>, Tserepi A<sup>1</sup>, Gogolides E<sup>1</sup>

<sup>1</sup>Institute of Nanoscience and Nanotechnology, National Center for Scientific Research Demokritos, Athens, Greece, <sup>2</sup>Department of Physics, University of Patras, Patras, Greece

PD19 Compact platform for automated cell culture and stem cell differentiation

**Pitingolo G<sup>1</sup>**, He Y<sup>1</sup>, Huang B<sup>1</sup>, Wang L<sup>2</sup>, Shi J<sup>2</sup>, Chen Y<sup>1</sup>

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PD20 Microbubbles generation using focused surface acoustic waves in microfluidic channels

**Jin S<sup>1</sup>**, Wei X<sup>1</sup>, Liu Z<sup>1</sup>, Ren<sup>1</sup>, Zhuangde<sup>1</sup>, Chris<sup>2</sup>, Yu<sup>2</sup>

<sup>1</sup>Xi'an Jiaotong University, Xi'an, China, <sup>2</sup>University of Cambridge, Cambridge CB2 1EW, UK

PD21 Design of microfluidic platforms for super resolution imaging of liver sinusoidal endothelial cell dynamics

**Dellaquila A**, Vigne A, Huser T, Leshner-Perez S

<sup>1</sup>Elvesys, Paris, France, <sup>2</sup>University of Bielefeld, Bielefeld, Germany

PD22 Novel Thermoplastic Fluoroelastomer for Rapid Fabrication of Chemically Compatible Microdevices

**McMillan A<sup>1,2</sup>**, Roeffaers M<sup>2</sup>, Leshner-Perez S<sup>1</sup>

<sup>1</sup>Elvesys Microfluidic Innovation Center, Paris, France, <sup>2</sup>Department of Microbial and Molecular Systems, Centre for Surface Chemistry and Catalysis (COK), KU Leuven, Leuven, Belgium

PD23 Vapor Chamber / Heat Spreader with Wettability – Patterned Condenser

Koukoravas T<sup>1</sup>, **Damoulakis G<sup>1</sup>**, Megaridis C<sup>1</sup>

<sup>1</sup>University of Illinois At Chicago, Chicago, United States



PD24 High Frequency and Label Free Dielectric Spectroscopy Sensor for T-Cell Characterization

**Gwozdz P**<sup>1</sup>, Hernandez L<sup>2</sup>, Harberts J<sup>1</sup>, Diercks B<sup>2</sup>, Singh U<sup>1</sup>, Guse A<sup>2</sup>, Blick R<sup>1</sup>

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PD26 Fast and label-free procalcitonin determination with a White Light Reflectance Spectroscopy sensor

**Tsounidi D**<sup>1</sup>, Koukouvinos G<sup>1</sup>, Goustouridis D<sup>2</sup>, Raptis I<sup>2</sup>, Tsaousis V<sup>3</sup>, Mitropoulos C<sup>3</sup>, Kakabakos S<sup>1</sup>, Petrou P<sup>1</sup>

<sup>1</sup>NCSR Demokritos, Aghia Paraskevi, Greece, <sup>2</sup>ThetaMetrisis S.A., Athens, Greece, <sup>3</sup>Medicon Hellas S.A., Gerakas, Greece

PD27 An amphiphilic copolymer-based chemocapacitor array for selective and sensitive sensing of volatile organic compounds

Nika A<sup>1</sup>, Oikonomou P<sup>2</sup>, Manouras T<sup>3</sup>, Argitis P<sup>2</sup>, Vamvakaki M<sup>3,4</sup>, Sanopoulou M<sup>2</sup>, Raptis I<sup>2</sup>, **Chatzichristidi M**<sup>1</sup>

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PD28 Magnetic design of multi-component nanoprobe for biomolecular diagnostics

**Brueckl H**<sup>1</sup>, Shoshi A<sup>1</sup>, Haslinger M<sup>2</sup>, Mitteramskogler T<sup>2</sup>, Muehlberger M<sup>2</sup>, Schotter J<sup>3</sup>, Schrittwieser S<sup>3</sup>

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PD29 Microscale Modelling and Simulation of Gas Sensor Based on MoS<sub>2</sub> Hollow Spheres

**Yuan Z**<sup>1</sup>

<sup>1</sup>Northeastern University, China, Shenyang, China

PD30 Individually addressable two-electrode electrochemical cell array sharing a single reference/counter electrode for enzyme activity measurements

**Gutiérrez-Capitán M**<sup>1</sup>, Merlos Á<sup>1</sup>, Baldi A<sup>1</sup>, Fernández-Sánchez C<sup>1</sup>

<sup>1</sup>Instituto de Microelectrónica de Barcelona (IMB-CNM), CSIC, Bellaterra (Barcelona), Spain

PD31 Atomic Gold Clusters Modified Polyaniline toward Highly Selective and Sensitive Electrochemical Sensor

**Chien Y**<sup>1</sup>, Chakraborty P<sup>1</sup>, Chiu W<sup>2</sup>, Chen C<sup>1</sup>, Chang T<sup>1</sup>, Nakamoto T<sup>1</sup>, Sone M<sup>1</sup>

<sup>1</sup>Institute of Innovative Research, Tokyo Institute of Technology, Yokohama, Japan, <sup>2</sup>Institute of Industrial Science, The University of Tokyo, Tokyo, Japan

PD32 Fast and Accurate Detection of Hydrogen Peroxide

Wagner L<sup>1</sup>, Pilecky M<sup>2</sup>, Kellner K<sup>1</sup>, Posniecek T<sup>1</sup>, Mazza G<sup>1</sup>, **Brandl M**<sup>1</sup>

<sup>1</sup>Department for Integrated Sensor Systems, Danube University Krems, Krems, Austria, <sup>2</sup>Department for Health Sciences and Biomedicine, Danube University Krems, Krems, Austria

PD33 Point-of-care test based on an asymmetric optofluidic grating for buruli ulcer detection

**Purr F**<sup>1,2</sup>, Stehr M<sup>3</sup>, Singh M<sup>3</sup>, Burg T<sup>2,4</sup>, Dietzel A<sup>1</sup>

<sup>1</sup>Technische Universität Braunschweig, Institute of Microtechnology, Braunschweig, Germany, <sup>2</sup>Max Planck Institute for Biophysical Chemistry, Goettingen, Germany, <sup>3</sup>Lionex Diagnostics & Therapeutics GmbH, Braunschweig, Germany, <sup>4</sup>Technische Universität Darmstadt, Department of Electrical Engineering and Information Technology, Darmstadt, Germany

PD34 NFC Antenna and Biosensor Electrode Fabrication on Intraocular Lens

**Ahn J**<sup>1</sup>, Lee K<sup>2</sup>, Jung D<sup>1,3</sup>, Kwon S<sup>1</sup>, Kim G<sup>1</sup>, Choi K<sup>1</sup>, Lim H<sup>1,3</sup>, Lee J<sup>1,3</sup>

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PD35 Carbon nanogap electrode arrays for electrochemical sensors and biosensors

**Partel S**<sup>1</sup>, Matylitskaya V<sup>1</sup>

<sup>1</sup>Vorarlberg University of Applied Sciences, Dornbirn, Austria

PD36 In vitro detection of pathogenic bacteria by phospholipase A activity for an integrated biosensor in domestic water systems

Schneider S<sup>1</sup>, Ettenauer J<sup>1</sup>, Brandl L<sup>1</sup>, **Brandl M**<sup>1</sup>

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PD37 Label-free detection of biomolecules and cells by Localized Surface Plasmon Resonance

**Merino S**<sup>1</sup>, Otaduy D<sup>1</sup>, Retolaza A<sup>1</sup>, Juarros A<sup>1</sup>, Barreda A<sup>2</sup>, González F<sup>2</sup>, Moreno F<sup>2</sup>, Franco A<sup>3</sup>, Fernández-Luna J<sup>3</sup>

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PD38 Evaluation of various cancer cells lines by four-point probe measurements

Paivana G<sup>1,2</sup>, **Barmpakos D**<sup>2</sup>, Mavrikou S<sup>1</sup>, Karavasilis C<sup>2</sup>, Tsakiridis O<sup>2</sup>, Kaltsas G<sup>2</sup>, Kintzios S<sup>1</sup>

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PD39 Particle-based immunoassay: analysis of non-specific allergen-IgE interactions

Chunilal L<sup>1</sup>, **Yescas González T**<sup>1</sup>, Gaude V<sup>1</sup>, Barre A<sup>2</sup>, Rougé P<sup>2</sup>, Garnier L<sup>3</sup>, Bienvenu F<sup>3</sup>, Bienvenu J<sup>3</sup>, Picard E<sup>4</sup>, Peyrade D<sup>1</sup>

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PD40 Rapid detection of Salmonella typhimurium in drinking water samples by a White Light Reflectance Spectroscopy immunosensor

**Angelopoulou M**<sup>1</sup>, Petrou<sup>1</sup>, Misiakos<sup>2</sup>, Raptis I<sup>3</sup>, Kakabakos<sup>1</sup>

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PD41 pH sensitivity evaluation of nanoFET sensor to extended sensing gate material

**Kang H<sup>1</sup>**, Yoon S<sup>1</sup>, Hong D<sup>1</sup>, Kim Y<sup>1</sup>, Song S<sup>1</sup>, Kim W<sup>1</sup>, Seong W<sup>1</sup>, Lee K<sup>1</sup>

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PD42 Synthesis of polymer-based nanoparticles for bio-nano application

**Szczęch M<sup>1</sup>**, Szczepanowicz K<sup>1</sup>, Warszński P<sup>1</sup>

<sup>1</sup>*Jerzy Haber Institute of Catalysis and Surface Chemistry, Polish Academy Of Sciences, Krakow, Poland*

PD43 Electrochemical hydrogen sensors for hydrogen fuel cell vehicle application

**Jung S<sup>1</sup>**, Jo Y<sup>1</sup>, Yoon H<sup>1</sup>, Lee S<sup>1</sup>

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PD44 Dielectrophoretically enhanced detection of E. coli cells by an integrated optical biosensor system

**Petrovski D<sup>1</sup>**, Valkai S<sup>1</sup>, Gora E<sup>1</sup>, Tanner M<sup>1</sup>, Bányai A<sup>2</sup>, Fürjes P<sup>2</sup>, Dér A<sup>1</sup>

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<sup>2</sup>*Institute of Technical Physics and Materials Science, Centre for Energy Research, Hungarian Academy of Sciences, Budapest, Hungary*

PD45 Bridge type micro-platforms with sizes of membrane and bridge-width for low-powered micro gas sensor using MEMS techniques

**Park J<sup>1</sup>**, Park K<sup>1</sup>, Hwang T<sup>1</sup>, Jung H<sup>2</sup>, Chun M<sup>2</sup>

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PD46 Patterning of Carbon Quantum Dots based thin films for electronic devices and sensors

**Segkos A<sup>1,2</sup>**, Kalogirou C<sup>2</sup>, Sakellis E<sup>1</sup>, Boukos N<sup>1</sup>, Kordatos K<sup>2</sup>, Tsamis C<sup>1</sup>

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PD47 The improvement of solid-state pH sensor for a case study on neonatal urine monitoring

**Zhang L<sup>1</sup>**, Lu J, Maeda R

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PD48 Designing of Three Electrode System Prothrombin Time Diagnostic Test Card for PoC Hemostasis Diagnosis in Electrochemical Platform

**Saha A<sup>1</sup>**, Bhattacharya S<sup>1</sup>

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PD49 Towards integrated multi-sensor platform for monitoring of cell nutrient, metabolite, pH, viable cell mass, dissolved oxygen and temperature in bioreactors

Rusli N<sup>1,2</sup>, Vincentini I<sup>3</sup>, **Kraft M<sup>1</sup>**

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PD50 Authentication of bilberries by Surface Enhanced Raman Spectroscopy

**Traksele L<sup>1</sup>**, Bobinas C<sup>2</sup>, Alencikiene G<sup>1</sup>, Salaseviciene A<sup>1</sup>, Snitka V<sup>1</sup>

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PD51 Imprinted nanoparticles with magnetic and plasmon-optical properties for biomolecular diagnostics

**Shoshi A<sup>1</sup>**, Haslinger M<sup>2</sup>, Mitteramskogler T<sup>2</sup>, Mühlberger M<sup>2</sup>, Schrittwieser S<sup>3</sup>, Schotter J<sup>3</sup>, Brückl H<sup>1</sup>  
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<sup>2</sup>PROFACTOR GmbH, Steyr-Gleink, Austria, <sup>3</sup>AIT Austrian Institute of Technology, Vienna, Austria

PD52 A plasmonic array of standing wires in the trigonal symmetric arrangement for broadband, polarization insensitive molecular sensing

**Giugni A<sup>1</sup>**, Allione M<sup>1</sup>, Torre B<sup>1</sup>, Marinaro G<sup>1</sup>, Kosel J<sup>1</sup>, Di Fabrizio E<sup>1</sup>  
<sup>1</sup>Kaust - King Abdullah University Of Science and Technology, Thuwal, Saudi Arabia

PD53 A silicon membrane-silver nanoparticles SERS chip for trace molecules detection

**Snitka V<sup>1</sup>**, Nemciauskas K<sup>1</sup>, Traksele L<sup>2</sup>, Salaseviciene A<sup>2</sup>  
<sup>1</sup>Kaunas University of Technology, Research Center for Microsystems and Nanotechnology, Kaunas, Lithuania, <sup>2</sup>Kaunas University of Technology, Food Institute, Kaunas, Lithuania

PD54 Evaporation-induced biosensing on superhydrophobic surface

**Uddin R<sup>1</sup>**, Jokinen V<sup>1</sup>, Mohammadi<sup>1</sup>, Franssila S<sup>1</sup>  
<sup>1</sup>Aalto university, Espoo, Finland

PD55 Storage of protein coated beads on point-of-care microfluidic cartridges for immunoassay applications

Johannsen B<sup>1</sup>, Karkossa L<sup>1</sup>, Baumgartner D<sup>1</sup>, Müller L<sup>1</sup>, Zengerle R<sup>1,2</sup>, **Mitsakakis K<sup>1,2</sup>**  
<sup>1</sup>Hahn-Schickard, Freiburg im Breisgau, Germany, <sup>2</sup>Department of Microsystems Engineering – IMTEK, Freiburg im Breisgau, Germany

PD56 Controlled Dispensing and Mixing in Microfluidic Devices for Multiplex Genetic Diagnosis

**Natsuhara D<sup>1</sup>**, Takishita K<sup>1</sup>, Tanaka K<sup>1</sup>, Kage A<sup>1</sup>, Nagai M<sup>1</sup>, Mizukami Y<sup>2</sup>, Saka N<sup>2</sup>, Shibata T<sup>1</sup>  
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PD57 Thermal design of LoC-on-PCB

Perdigones F<sup>1</sup>, Cabello M<sup>1</sup>, **Quero J<sup>1</sup>**  
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PD58 Droplet-based fluid central processing platform and applications

Xing Y<sup>1</sup>, Liu X<sup>2</sup>, Liu Y<sup>1</sup>, Chen R<sup>1</sup>, **Cheng X<sup>1</sup>**  
<sup>1</sup>Southern University of Science and Technology, Shenzhen, China, <sup>2</sup>Dalian Institute of Chemical Physics, Chinese Academy of Sciences, Dalian, China

PD59 Versatile fabrication technology for microfluidic systems

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PD60 Fabrication of a drug delivery tool via Laser-Induced Forward Transfer

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PD61 Effect of oxygen plasma micro/nanostructured PMMA plates on the adhesion and proliferation of normal and cancer cells

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PD62 Reflow Process for Fabricating Curved Shaping Molds of PDMS Microchannels and Chambers

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PD63 A microfluidic device for live cells capturing and phenotyping using dielectrophoresis and metasurface-enhanced infrared reflection spectroscopy

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PD64 Impulsion system for DNA amplification microdevice integrated on PCB

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PD65 Circular continuous flow PCR on a PCB microchip

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PD66 The Investigation of Water Disinfection by Deep Ultraviolet Light-Emitting Diodes Array

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PD67 On-chip synthesis of ruthenium complex in a microchannel by microwave heating

**Takeuchi M**<sup>1</sup>, Kishihara M<sup>2</sup>, Kobayashi T<sup>3</sup>, Yamaguchi A<sup>1</sup>, Matsumoto-inoue T<sup>4</sup>, Utsumi Y<sup>1</sup>

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PD68 Automated and versatile platform for cell culture and cardiac differentiation on engineered microsystems

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PD69 Development of an automated system for obstructive sleep apnea treatment based on machine learning and breath effort monitoring

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PD70 Evidence of Cation Selective Nano-Sized Conducting Filament Formation in Resistive Switching Memories

**Das D<sup>1</sup>**, Johari <sup>1</sup>, Kanjilal A<sup>1</sup>

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PD71 3D Scaffolds by soft lithography for retinal tissue reconstruction

**Hamouda F<sup>1</sup>**, Guilet S<sup>1</sup>, Herth E<sup>1</sup>, Herardot E<sup>2</sup>, Morizur L<sup>2</sup>, Ben M'Barek K<sup>2</sup>, Monville C<sup>2</sup>

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PD72 Photocatalytic Nanofabrication and Intracellular Imaging of Living Cells Using Functionalized AFM Probe

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PD73 Internalization and viability studies of suspended nanowires silicon chips in HeLa cells

**Duch M<sup>1</sup>**, Duran S<sup>1</sup>, Gómez R<sup>1</sup>, Fernández M<sup>1</sup>, Reina M<sup>2</sup>, Müller C<sup>2</sup>, San Paulo Á<sup>3</sup>, Esteve J<sup>1</sup>, Castel S<sup>2</sup>, Plaza J<sup>1</sup>

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PD74 Microfluidic channel with embedded monolayer nanofibers for cell culture and co-culture

**Huang B<sup>1</sup>**, He Y<sup>1</sup>, Wang J<sup>2</sup>, Shi J<sup>2</sup>, Hu J<sup>1</sup>, Rofaani E<sup>1</sup>, Yamata A<sup>1</sup>, Chen Y<sup>1</sup>

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PD75 On chip reconstitution of complex biological systems: a bridge between biology and mathematical models

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PD76 Fabrication of artificial basement membrane for epithelial cell culture

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PD77 Nanosecond Laser Irradiation on Cells Using Titanium Thin Film for Massively Parallel Cell Intranuclear Delivery

**Sawai S<sup>1</sup>**, Gupta H<sup>1</sup>, Santra T<sup>2</sup>, Kage A<sup>1</sup>, Shibata T<sup>1</sup>, Nagai M<sup>1</sup>

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PD78 Cryo-FIB preparation of neuron cell interface

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PD79 In vitro bone marrow tissue development in 3D microfluidic cell culture chambers towards bone marrow-on-a-chip

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PD80 Influence of the fabrication accuracy on the biocompatibility of Hot-embossed PCL scaffolds

**Dattola E**<sup>1</sup>, Limongi T<sup>2</sup>, Botta C<sup>3</sup>, Scopacasa B<sup>3</sup>, Coluccio M<sup>3</sup>, Candeloro P<sup>3</sup>, Cucè M<sup>3</sup>, Tagliaferri P<sup>3</sup>, Tassone P<sup>3</sup>, Lamanna E<sup>4</sup>, Pullano S<sup>4</sup>, Critello C<sup>4</sup>, Fiorillo A<sup>4</sup>, Di Fabrizio E<sup>2</sup>, Perozziello G<sup>3</sup>

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PD81 On chip monitoring of tumor spheroid growth and isolation of detached tumor cells with and without drug treatment

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PD82 Development of organ-on-chip barrier devices in new soft thermoplastics

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