

PROGRAMME - TUESDAY 29 SEPTEMBER 2009

PLENARY SESSION 1, 08:30 - 10:10

08:30 – 08:50

Welcome address

08:50 - 09:30 *KEYNOTE PRESENTATION*

O-PLEN-01 - Nanoelectronics in the future : tackling societal and environment challenges

L. Van den hove

IMEC, LEUVEN, Belgium

09:30 - 10:10 *KEYNOTE PRESENTATION*

O-PLEN-02 - Cavity optomechanics - backaction cooling of mechanical motion

T. Kippenberg

EPFL Zürich, Switzerland

PARALLEL SESSION 1A: LITHOGRAPHY MATERIALS, 10:40 - 12:00

10:40 - 11:00

O-LITH-01 - HafSOx resist: 100-keV exposure and pattern transfer

J. Stowers¹, D. Olynick², S. Dhuey², D. Keszler¹

¹Oregon State University, CORVALLIS, United States of America

²Lawrence Berkeley National Lab, BERKELEY, United States of America

11:00 - 11:20

P-LITH-110 - New hybrid organic-inorganic sol-gel positive resist

A. Pistore¹, L. Brigo¹, A. Carpentiero², G. Greci², F. Romanato², G. Brusatin¹

¹Padova University, PADOVA, Italy

²TASC-INFM National Laboratory, BASOVIZZA (TS), Italy

11:20 - 11:40

O-LITH-03 - Fullerene chemically amplified resist

A. Robinson, J. Manyam, M. Manickam, J. Preece, R. Palmer

The University of Birmingham, BIRMINGHAM, United Kingdom

11:40 - 12:00

O-LITH-04 - Detailed Resist Film Modelling in Stochastic Lithography Simulation for Line-Edge Roughness Quantification

G. Patsis, D. Drygiannakis, E. Gogolides, I. Raptis

NCSR Demokritos, AGHIA PARASKEVI, Greece

PARALLEL SESSION 1B: NANOPHOTONICS, 10:40 - 12:00

10:40 - 11:00

O-NANO-01 - A versatile all-silica microfabricated probe for near-field optical microscopy and spectroscopy

E. Descrovi

Politecnico di Torino, TORINO, Italy

11:00 - 11:20

O-NANO-02 - Functional plasmonic antenna Scanning Probes fabricated by Induced Deposition Mask Lithography

A.F. Weber-Bargioni, S. Cabrini

Lawrence Berkeley National Laboratory, BERKELEY, United States of America

11:20 - 11:40

O-NANO-03 - Trapped particle based all-optical nano modulator and sensor

Z. Zalevsky, Y. Abraham, O. Limon, L. Bitton, A. Frydman
Bar-Ilan University, RAMAT-GAN, Israel

11:40 - 12:00

O-NANO-04 - Surface plasmon polariton coupling induced transmission of subwavelength metallic grating with waveguide layer

R. Liu
Fudan University, SHANGHAI, China

PARALLEL SESSION 1C: MICROSYSTEMS I, 10:40 - 12:00

10:40 - 11:00

O-LIFE-01 - 4-D dielectrophoresis handling of Janus particles in a microfluidic chip

Peyrade, T. Honegger, O. Lecarme, K. Berton
LTM-CNRS, GRENOBLE, France

11:00 - 11:20

O-LIFE-02 - Magnetic particles as multifunctional carriers and fluid drivers in micro systems

R.J.S. Derks¹, A.J.H. Frijns¹, M.W.J. Prins², A.H. Dietzel³
¹Eindhoven University of Technology, EINDHOVEN, The Netherlands
²Philips Research, EINDHOVEN, The Netherlands
³Holst Centre, EINDHOVEN, The Netherlands

11:20 - 11:40

O-LIFE-03 - Multi-functionalizing micropatterned conducting polymers by 'electro-clicking'

N. Larsen, T.S. Hansen, J.U. Lind, A.E. Daugaard, S. Hvilsted
Technical University of Denmark, ROSKILDE, Denmark

11:40 - 12:00

O-LIFE-04 - Increasing Superhydrophobic Surface Roughness by Pentagonal and Octagonal Micro-pattern Arrays

N. Atthi¹, W. Jeamsaksiri¹, A. Poyai¹, A. Pankiew¹, J. Supadech¹, C. Hruanun¹, O. Nimitrakoolchai², S. Supothina²
¹National Electronics and Computer Technology Center, PATHUMTHANI, Thailand
²National Metal and Materials Technology Center, PATHUMTHANI, Thailand

PARALLEL SESSION 2A: OPTICAL LITHOGRAPHY, 13:40 - 15:30

13:40 - 14:10 *INVITED PRESENTATION*

O-LITH-05 - Combinatorial lithography throughout 193i to EUV transition to meet scaling requirements below 32nm

M. Dusa
ASML, Belgium

14:10 - 14:30

O-LITH-06 - Challenges in using conventional optical lithography for the building of a 22nm node 6T-SRAM cell

M. Ercken, E. Altamirano-Sanchez, C. Baerts, J. De Backer, M. Demand, C. Delvaux, S. Locorotondo, T. Vandeweyer, A. Veloso, S. Verhaegen
IMEC, HEVERLEE, Belgium

14:30 - 14:50

O-LITH-07 - 25 nm resolution Fresnel zone plate fabrication using extreme ultraviolet holography

S.S. Sarkar, H.H. Solak, C. David, J.F. Van der Veen
Paul Scherrer Institute, VILLIGEN AG, Switzerland

14:50 - 15:10

O-LITH-08 - Removing carbon contamination from EUVL optics by shielded plasma

R. Koops, N.B. Koster, R. Verberk, A.E. Duisterwinkel
TNO I&T, DELFT, The Netherlands

15:10 - 15:30

O-LITH-09 - Learning about EUV optics contamination from Small-Field-Exposure-Tool

I. Nishiyama

Selete, TSUKUBA, Japan

PARALLEL SESSION 2B: NANOMANUFACTURING, 13:40 - 15:20

13:40 - 14:00

O-NANO-05 - Controlled Assembly of Gold Nanowires by Dielectrophoretic Dispersion of Colloids

N. Schirmer, T. Schwamb, B. Burg, D. Poulikakos

ETH Zurich, ZURICH, Switzerland

14:00 - 14:20

O-NANO-06 - Direct local deposition of high-purity Pt nanostructures by combining EBID and ALD

A.J.M. Mackus¹, J.J.L. Mulders², A.F. De Jong², M.C.M. Van de Sanden¹, W.M.M. Kessels¹

¹Eindhoven University of Technology, EINDHOVEN, The Netherlands

²FEI Electron Optics, EINDHOVEN, The Netherlands

14:20 - 14:40

O-NANO-07 - Fabrication of Micro Ball Joint by using Micro EDM and Electroforming

C-S. Lin¹, Y-S. Liao¹, Y-T. Cheng², Y-C. Lai³

¹Department of Mechanical Engineering, National Taiwan University, TAIPEI, Taiwan

²Nano Technology Research Center, Industrial Technology Research Institute, HSINCHU, Taiwan

³Department of Mechatronic Technology, National Taiwan Normal University, TAIPEI, Taiwan

14:40 - 15:00

O-NANO-08 - Silver electrode fabrication in closed micro capillaries

F. Heuck, U. Stauffer

TU Delft, DELFT, The Netherlands

15:00 - 15:20

O-NANO-09 - A Novel Technique for Embedding Electrodes and Heaters in Microfluidic Devices

Z. Wang, S.H. Ng, Z. Wang

Singapore Institute of Manufacturing Technology, SINGAPORE, Singapore

PARALLEL SESSION 2C: NANOSENSORS AND SYSTEMS, 13:40 - 15:30

13:40 - 14:10 *INVITED PRESENTATION*

O-LIFE-15 - A novel advanced CMOS biosensor technology for measuring affinity reactions

F. Frederix

NXP, Belgium

14:10 - 14:30

O-LIFE-16 - On-chip localized surface plasmon resonance biosensor with gold nanorings

C. Huang, J. Ye, S. Wang, T. Stakenbord, L. Lagae, G. Borghs

IMEC, LEUVEN, Belgium

14:30 - 14:50

O-LIFE-17 - Interdigitated nanoelectrodes fabricated by electron beam lithography for genosensing

I. Fernandez-Cuesta¹, A. Bonanni², X. Borrís³, M. Del Valle², F. Perez-Murano⁴

¹DTU-Nanotech, KONGENS LYNGBY, Denmark

²Universitat Autònoma de Barcelona, Departament de Química, BELLATERRA, Spain

³CIN2 - ICN - CSIC, BELLATERRA, Spain

⁴Intitut de Microelectronica de Barcelona (IMB - CNM, CSIC), BELLATERRA, Spain

14:50 - 15:10

O-LIFE-18 - Intrinsic Localization Property of SERS Demonstrated by Electron Beam Induced Deposition

C. Chen¹, P. Van Dorpe¹, J.A. Hutchison², F. Clemente¹, R. Kox¹, H. Uji-I², J. Hofkens², L. Lagae¹, G. Maes², G. Borghs¹

¹IMEC vzw, LEUVEN, Belgium

²Katholieke universiteit Leuven, LEUVEN, Belgium

15:10 - 15:30

O-LIFE-19 - Inverted tapered pillars for DNA self assembled monolayer

M. Melli¹, G. Scoles¹, M. Lazzarino²

¹SISSA, TRIESTE, Italy

²CNR-INFM-TASC, TRIESTE, Italy

POSTER SESSION I, 16:00 – 18:00

All posters will be on display for the duration of the conference. **Odd-numbered** posters will be presented during Poster Session I.

PROGRAMME - WEDNESDAY 30 SEPTEMBER

PLENARY SESSION 2, 08:30 - 09:50

08:30 - 09:10 KEYNOTE PRESENTATION

O-PLEN-03 - New opportunities for electron-beam lithography: the promises and challenges of massively parallel pixel projection

H. Pfeiffer

HCP Consulting, United States of America

09:10 - 09:50 KEYNOTE PRESENTATION

O-PLEN-04 - Unconventional approaches to nanofabrication

C. Mirkin

Northwestern University, United States of America

PARALLEL SESSION 3A: NANO IMPRINT I, 10:20 - 12:10

10:20 - 10:50 INVITED PRESENTATION

O-LITH-10 - Challenges to next-generation lithography

T. Higashiki

Toshiba, Japan

10:50 - 11:10

O-LITH-11 - Sub 50nm Working Stamps for Nanoimprint Lithography from CHARPAN Tool exposed Master Templates

M. Mühlberger¹, I. Bergmair¹, M. Chouiki¹, E. Platzgummer², H. Loeschner², P. Joechl², S. Eder-Kapl², C. Ebm², M. Kast³, G. Kreindl³, R. Schöftner¹

¹Profactor GmbH, STEYR, Austria

²IMS Nanofabrication AG, VIENNA, Austria

³EV Group, E. Thallner GmbH, ST FLORIAN AM INN, Austria

11:10 - 11:30

O-LITH-12 - UV Enhanced Substrate Conformal Imprint Lithography (UV-SCIL) Technique for Photonic Crystals Patterning in LED Manufacturing

R. Ji¹, M. Hornung¹, M. Verschuuren², R. Laar², J. Eekelen²

¹Süss MicroTec Lithography GmbH, GARCHING, Germany

²Philips Research, EINDHOVEN, The Netherlands

11:30 - 11:50

O-LITH-13 - Charged Particle Nanopatterning (CHARPAN) of 2D and 3D masters for flexible replication in Substrate Conformal Imprint Lithography (SCIL)

F.C.M.J.M Van Delft¹, R.H.W.J.J Van de Laar¹, M.A. Verschuuren¹, E. Platzgummer², H.J. Loeschner²

¹Philips Research, EINDHOVEN, The Netherlands

²IMS Nanofabrication AG, VIENNA, Austria

11:50 - 12:10

O-LITH-14 - Influence of nano-embossing on properties of poly(VDF-TrFE) copolymers

R. Liu

Fudan university, SHANGHAI, China

PARALLEL SESSION 3B: NANOPATTERNING AND NANOMETROLOGY, 10:20 - 12:10

10:20 - 10:50 INVITED PRESENTATION

O-NANO-10 - Plasma etching of nanometer scale features

Y. Zhang, B. To, E. Sikorski

IBM T.J. Watson Research Center, YORKTOWN HEIGHTS, United States of America

10:50 - 11:10

O-NANO-11 - Simulation of Focused Ion Beam Etching by Coupling a Topography Simulator and a Monte-Carlo Sputter Yield Simulator

D. Kunder¹, E. Baer¹, M. Sekowski², P. Pichler¹, M. Rommel¹

¹Fraunhofer IISB, ERLANGEN, Germany

²Chair of Electron Devices, University of Erlangen-Nuremberg, ERLANGEN, Germany

11:10 - 11:30

O-NANO-12 - Investigation of TaN and TiN metal gates during high-k (Al₂O₃) dry etch at elevated temperatures

J. Paul¹, V. Beyer¹, K. Biedermann¹, M. Mildner¹, E. Schütze¹, T. Melde¹, M. Czernohorsky¹, S. Wege², M.F. Beug², R. Knöfler¹, T. Mikolajick³

¹Fraunhofer-Center Nanoelectronic Technologies, DRESDEN, Germany

²Qimonda Dresden GmbH & Co. OHG, DRESDEN, Germany

³C Chair of Electronic- and Sensor Materials, FREIBERG, Germany

11:30 - 11:50

O-NANO-13 - Optical force measurement system with mirror probe for nanoprobng inside a scanning electron microscope

K. Arstila¹, T. Hantschel¹, S. Kleindiek², J. Ster², Q. Vaquette¹, C. Demeulemeester¹, W. Vandervorst³

¹IMEC, LEUVEN, Belgium

²Kleindiek Nanotechnik GmbH, REUTLINGEN, Germany

³IKS/Dept. Physics, KU Leuven, LEUVEN, Belgium

11:50 - 12:10

O-NANO-14 - AFM imaging of cells attached on nanostructure patterns

Y. Chen, X. Zhou, F. Zhang, J. Hu, X.M. Ma, X. Li

Ecole Normale Supérieure, PARIS, France

PARALLEL SESSION 3C: MICROSYSTEMS II, 10:20 - 12:00

10:20 - 10:40

O-LIFE-05 - A 1.4 m long pillar channel for complex chromatographic separations of nl sized samples

W De Malsche¹, S. De Bruyne¹, J. Op De Beeck¹, D. Cabooter¹, F. Lynen², P. Sandra², H. Gardeniers³, G. Desmet¹

¹Vrije Universiteit Brussel, BRUSSEL, Belgium

²Universiteit Gent, GENT, Belgium

³Mesa+ Insitute for Nanotechnology, ENSCHEDE, The Netherlands

10:40 - 11:00

O-LIFE-06 - Lab-on-a-chip for the isolation and characterization of circulating tumor cells

T. Stakenborg¹, C. Liu¹, O. Henry², C. O'Sullivan², C. Fermer³, T. Roeser⁴, S. Hauch⁵, E. Borgen⁶, N. Laddach⁷, L.

Lagae¹

¹IMEC, LEUVEN, Belgium

²Universitat Rovira i Virgili, TARRAGONA, Spain

³Fujirebio Diagnostics AB, GÖTEBORG, Sweden

⁴Institut für Mikrotechnik Mainz, MAINZ, Germany

⁵AdnaGen AG, LANGENHAGEN, Germany

⁶National Norwegian Radium Hospital, University of Oslo, OSLO, Norway

⁷MRC-Holland, AMSTERDAM, The Netherlands

11:00 - 11:20

O-LIFE-07 - CO₂ laser fabrication of polymer microfluidic devices for water purification

K. Pszon-Bartos¹, J.S. Hansen², J. Vogel², M. Perry², C.H. Nielsen², J. Emnéus¹, O. Geschke¹

¹Technical University of Denmark, KONGENS LYNGBY, Denmark

²Aquaporin, KONGENS LYNGBY, Denmark

11:20 - 11:40

O-LIFE-08 - A cyclo-olefin polymer chip containing a column with an array of ordered pillars for pressure-driven liquid chromatography

X. Illa¹, W. De Malsche², H. Gardeniers³, G. Desmet², J. Eijkel³, A. Romano-Rodríguez¹

¹Universitat de Barcelona, BARCELONA, Spain

²Vrije Universiteit Brussel, BRUSSEL, Belgium

³MESA+ Research Institute, ENSCHEDE, The Netherlands

11:40 - 12:00

O-LIFE-09 - A flexible modular optical sensor array for wound monitoring fabricated by novel lamination and interconnect technologies

A. Dietzel, J. Van den Brand, M.M. Koetse, M. Saalmink, R. Koesters

TNO- Holst Centre, EINDHOVEN, The Netherlands

PARALLEL SESSION 4A: MASKLESS LITHOGRAPHY I, 13:40 - 15:30

13:40 - 14:10 *INVITED PRESENTATION*

O-LITH-15 - The position of direct write lithography in industry : a challenger or a complementary solution to EUV?

L. Pain

CEA-LETI, GRENOBLE, France

14:10 - 14:30

O-LITH-16 - Projection Mask-Less Lithography (PML2)

C. Klein, J. Klikovits, L. Szikszai, E. Platzgummer, H. Loeschner

IMS Nanofabrication AG, VIENNA, Austria

14:30 - 14:50

O-LITH-17 - Fabrication of complex nanostructures in a single process step using e-beam lithography

S. Gautsch, M. Studer, N. De Rooij

Ecole Polytechnique Fédérale de Lausanne (EPFL), NEUCHÂTEL, Switzerland

14:50 - 15:10

O-LITH-18 - Atomic precision patterning on Si: An opportunity for a digitized process

J.N. Randall¹, J. Ballard¹, J. Lyding²

¹Zyvx Labs, RICHARDSON, United States of America

²University of Illinois, URBANA-CHAMPAGNE, United States of America

15:10 - 15:30

O-LITH-19 - Sub-5nm electron beam lithography

N. Arjmandi, T. Stakenborg, G. Borghs, L. Lagae

IMEC, HEVERLEE, Belgium

PARALLEL SESSION 4B: TOP DOWN MANUFACTURING - SURFACE INTERACTIONS, 13:40 - 15:20

13:40 - 14:00

O-NANO-15 - Nanometer-Scale Direct-Write 3D Patterning Using Probes

A. Knoll¹, D. Pires¹, U. Drechsler¹, J.L. Hedrick², J. Frommer², M. Despont¹, U.T. Duerig¹

¹IBM Zurich Research Laboratory, RUESCHLIKON, Switzerland

²IBM Almaden Research Center, SAN JOSE, United States of America

14:00 - 14:20

O-NANO-16 - Influence of gasification on electro-acoustical and cleaning performance of a 1 MHz Nozzle System in Megasonic Cleaning

M. Hauptmann¹, S. Brems², E. Camerotto¹, A. Zijlstra³, G. Doumen², T. Bearda², P.W. Mertens², W. Lauriks⁴

¹KU Leuven, IMEC Belgium, LEUVEN, Belgium

²IMEC, LEUVEN, Belgium

³University of Twente, ENSCHEDE, The Netherlands

⁴KU Leuven, LEUVEN, Belgium

14:20 - 14:40

O-NANO-17 - Plasma-surface interaction during plasma assisted atomic layer deposition

H. Profijt, P. Kudlacek, R. Van de Sanden, W.M.M. Kessels

Eindhoven University of Technology, EINDHOVEN, The Netherlands

14:40 - 15:00

O-NANO-18 - Large area nanoporated SiN membranes for optical and mechanical filtering

J. Viheriälä¹, T. Niemi¹, J. Laukkanen², M. Karjalainen¹, M. Pessa¹

¹Tampere University of Technology, TAMPERE, Finland

²Department of Physics and Mathematics, University of Joensuu, JOENSUU, Finland

15:00 - 15:20

O-NANO-19 - Fabrication SOI micro- and nanoelectromechanical devices by focused ion beam doping and deep reactive ion etching

L. Sainiemi, N. Chekurov, A. Peltonen, I. Tittonen, S. Franssila

Helsinki University of Technology, ESPOO, Finland

PARALLEL SESSION 4C: MEMS MATERIALS AND TECHNOLOGY, 13:40 - 15:30

13:40 - 14:10 *INVITED PRESENTATION*

O-MEMS-01 - Wafer-scale high-throughput mechanical characterization of MEMS structural layers

O. Paul

IMTEK, Germany

14:10 - 14:30

O-MEMS-02 - Lab-on-chip tensile stages for nanomechanical testing and TEM analysis

M. Coulobier¹, A. Boé², M-S. Colla¹, C. Brugger¹, J. Dille³, S. Godet³, T. Pardoën¹, J-P. Raskin²

¹UCL/IMMC, LOUVAIN-LA-NEUVE, Belgium

²UCL/Department of Electrical Engineering, LOUVAIN-LA-NEUVE, Belgium

³ULB/Groupe des Matières et Matériaux, BRUXELLES, Belgium

14:30 - 14:50

O-MEMS-03 - Thermoelectric energy harvester fabricated by stepper

J. Su¹, M. Goedbloed¹, R. Vullers¹, Y. Van Andel¹, V. Leonov², Z. Wang³

¹Holst/IMEC, EINDHOVEN, The Netherlands

²IMEC-vzw, LEUVEN, Belgium

³KU Leuven, LEUVEN, Belgium

14:50 - 15:10

O-MEMS-04 - Multistage radiation detectors, cavities and cantilevers created with SU-8 foils

J. Melai, V.M. Blanco Carballo, C. Salm, J. Schmitz

University of Twente, ENSCHEDE, The Netherlands

15:10 - 15:30

O-MEMS-05 - Fabrication of an all-polymer electrochemical sensor by using an one-step hot embossing procedure

J. Kafka, N.B. Larsen, S. Skaarup, O. Geschke

Technical University of Denmark, KGS. LYNGBY, Denmark

POSTER SESSION II, 16:00 – 18:00

All posters will be on display for the duration of the conference. **Even-numbered** posters will be presented during Poster Session II.

PROGRAMME - THURSDAY 1 OCTOBER

PLENARY SESSION 3, 08:30 - 09:50

08:30 - 09:10 KEYNOTE PRESENTATION

O-PLEN-05 - New directions and application areas for MEMS

F. Laermer

Bosch, Germany

09:10 - 09:50 KEYNOTE PRESENTATION

O-PLEN-06 - Nanowires as a bottom-up approach for electronic and photonic devices

L. Samuelson

Lund University, LUND, Sweden

PARALLEL SESSION 5A: MASKLESS LITHOGRAPHY II, 10:20 - 12:00

10:20 - 10:40

O-LITH-20 - High-density sub-10 nm nanolithography with a focused helium ion beam

E. Van der Drift¹, V. Sidorkin¹, E. Van Veldhoven², A. Van Langen-Suurling¹, P. Alkemade¹, D. Maas², H.W.M. Salemink¹

¹TU Delft, DELFT, The Netherlands

²TNO, DELFT, The Netherlands

10:40 - 11:00

O-LITH-21 - Scanning-helium-ion-beam lithography

D. Winston¹, B. Cord¹, B. Ming², D. Bell³, L. Stern⁴, A. Vldar², M. Postek², M. Mondol¹, J. Yang¹, K. Berggren¹

¹Massachusetts Institute of Technology, CAMBRIDGE, United States of America

²National Institute of Standards and Technology, GAITHERSBURG, United States of America

³Harvard University, CAMBRIDGE, United States of America

⁴Carl Zeiss SMT Inc., PEABODY, United States of America

11:00 - 11:20

O-LITH-22 - 3D nanostructures by combined FIB and electron beam processing

L. Bischoff

Forschungszentrum Dresden-Rossendorf, DRESDEN, Germany

11:20 - 11:40

O-LITH-23 - Systematic study of the interdependence of exposure and development conditions and multiscale modelling for optimizing low-energy electron beam nanolithography

M. Stepanova¹, M.A. Mohammad², T. Fito¹, J. Chen¹, M. Aktary³, S. Dew²

¹National Institute for Nanotechnology, EDMONTON, Canada

²University of Alberta, EDMONTON, Canada

³Applied Nanotools Inc., EDMONTON, Canada

11:40 - 12:00

O-LITH-24 - Improved CD Control and Line Edge Roughness in E-Beam Lithography through combining Proximity Effect Correction with Gray Scale Techniques

J. Bolten¹, T. Wahlbrink¹, H. Kurz¹, S. Stammberger², U. Hofmann², N. Ünal²

¹AMO GmbH, AACHEN, Germany

²GenlSys GmbH, TAUFKIRCHEN, Germany

PARALLEL SESSION 5B: PHOTONIC CRYSTALS, 10:20 - 12:00

10:20 - 10:40

O-NANO-20 - Micro scale photonic integrated all-optical logic gate

Z. Zalevsky¹, A. Rudnitsky¹, M. Nazarathi², M. Nathan³, B. Larom², A. Gerardino⁴, L. Businaro⁵, A. Martucci⁶

¹Bar-Ilan University, RAMAT-GAN, Israel

²Technion, HAIFA, Israel

³Tel-Aviv University, TEL-AVIV, Israel

⁴Università di Padova, PADOVA, Italy

⁵CNR-INFN TASC Laboratory, TRIESTE, Italy

⁶Inst. for photonics and nanotechnologies, ROME, Italy

10:40 - 11:00

O-NANO-21 - Fabrication and characterization of nanoimprinted photonic crystal lasers

V. Reboud¹, N. Kehagias¹, P. Lovera², J. Romero-Vivas³, G. Redmond², C.M. Sotomayor Torres⁴

¹Catalan Institute of Nanotechnology and (ICN-CIN2), BARCELONA, Spain

²Tyndall National Institute, CORK, Ireland

³Institut Fresnel, MARSEILLE, France

⁴Catalan Institute of Nanotechnology, Catalan Institute for Research and Advanced, BARCELONA, Spain

11:00 - 11:20

O-NANO-22 - Emission control of colloidal nanocrystals embedded in Si₃N₄ photonic crystal H1 nanocavities

A. Quattieri¹, F. Pisanello², M. Grande³, T. Stomeo¹, L. Martiradonna⁴, G. Epifani¹, A. Fiore¹, A. Passaseo⁵, M. De Vittorio¹

¹National Nanotechnology Laboratory of CNR/INFN, Scuola Superiore ISUFI, LECCE, Italy

²Laboratoire KASTLER BROUSSE - Université Paris 6, Ecole Normale Supérieure, 75252 PARIS CEDEX 05, France

³Dipartimento di Elettrotecnica ed Elettronica, Politecnico di Bari, BARI, Italy

⁴Italian Institute of Technology, INN, LECCE, Italy

⁵IMM, Campus Universitario, LECCE, Italy

11:20 - 11:40

O-NANO-23 - Integration of bow-tie optical nano-antenna with photonic crystals

A. Chang, A. Weber-Bargioni, S. Dhuey, B. Harteneck, D. Olynick, S. Cabrini

Lawrence Berkeley National Laboratory, BERKELEY, United States of America

11:40 - 12:00

O-NANO-24 - High-photostable solid-state organic distributed feedback laser fabricated via thermal nanoimprint lithography

V. Trabadelo¹, A. Juarros¹, A. Retolaza¹, S. Merino¹, M. Ramírez², V. Navarro-Fuster², P. Boj², M. Villalvilla², M. Díaz-García²

¹Tekniker, EIBAR, Spain

²Instituto Universitario de Materiales de Alicante, Universidad de Alicante, ALICANTE, Spain

PARALLEL SESSION 5C: INTEGRATED MEMS, 10:20 - 12:10

10:20 - 10:50 *INVITED PRESENTATION*

O-MEMS-06 - Ultra-high data density MEMS memory device

J. Heck

Intel, United States of America

10:50 - 11:10

O-MEMS-07 - Integration of Radio Frequency Dome Resonators within CMOS Technology

W Zhou¹, J.D. Cross¹, M.K. Zalalutdinov², B.R. Ilic¹, J. W. Baldwin², B.H. Houston², H.G. Craighead¹, J.M. Parpia¹

¹Cornell University, ITHACA, United States of America

²U. S. Naval Research Laboratory, WASHINGTON, United States of America

11:10 - 11:30

O-MEMS-08 - 3D electro- optical devices stacking on CMOS

L. Dellmann, U. Drechsler, T. Morf, H. Rothuizen, R. Stutz, J. Weiss, M. Despont

IBM Research GmbH, RUSCHLIKON, Switzerland

11:30 - 11:50

O-MEMS-09 - Wafer-level transfer technology for the integration of PZT-based RF MEMS switches on CMOS

U. Drechsler¹, R. Guerre¹, D. Bhattacharyya², P. Rantakari³, R. Stutz¹, R.V. Wright², F. Sahari⁴, Z. Milosavljevic⁵, T. Vähä-Heikkilä³, P.B. Kirby², M. Despont¹

¹IBM Zurich Research Lab, RUESCHLIKON, Switzerland

²Cranfield University, CRANFIELD, United Kingdom

³VTT Technical Research Center of Finland, ESPOO, Finland

⁴KTH- Royal Institute of Technology, STOCKHOLM, Sweden

⁵Pulse Finland Oy, KEMPELE, Finland

11:50 - 12:10

O-MEMS-10 - An integrated field emission array for ion desorption

P. Resnick¹, C. Holland², P. Schwoebel³, K. Hertz¹, D. Chichester⁴

¹Sandia National Laboratories, ALBUQUERQUE, NM, United States of America

²SRI International, MENLO PARK, CA, United States of America

³University of New Mexico, ALBUQUERQUE, NM, United States of America

⁴Idaho National Laboratory, IDAHO FALLS, ID, United States of America

PARALLEL SESSION 6A: NANO IMPRINT II, 13:40 - 15:20

13:40 - 14:00

P-LITH-43 - Fully automated hot embossing processes utilizing high resolution working stamps

T. Glinsner¹, T. Veres², G. Kreindl¹, E. Roy², T. Wieser¹, D. Treiblmayr¹, R. Miller¹, P. Lindner¹

¹EVGroup, ST. FLORIAN, Austria

²Industrial Materials Institute, National Research Council Canada, MONTREAL, Canada

14:00 - 14:20

O-LITH-26 - Evaluation of Demolding Force by Si Molds with Extremely Smooth Side Wall Patterns

H. Kawata, K. Kubo, M. Masato, M. Yasuda, Y. Hirai

Osaka Prefecture University, SAKAI, Japan

14:20 - 14:40

O-LITH-27 - Potential and limitations of a T-NIL / UVL hybrid process

H.-C. Scheer¹, M. Wissen², N. Bogdanski¹, S. Möllenbeck¹, A. Mayer¹

¹University of Wuppertal, WUPPERTAL, Germany

²NXP Semiconductors GA GmbH, HAMBURG, Germany

14:40 - 15:00

O-LITH-28 - Nanoelectrode lithography using a flat mold with a pattern defined by AFM lithography

A. Yokoo¹, H. Namatsu²

¹NTT Basic Reserch Laboratories, ATSUGI-SHI, KANAGAWA PREF., Japan

²NTT Advanced Technology Corp., ATSUGI-SHI, Japan

15:00 - 15:20

O-LITH-29 - Degradation and surfactant-aided regeneration of fluorinated anti-sticking mold treatments in UV nanoimprint lithography

M. Zelsmann, C. Alleaume, D. Truffier-Boutry, A. Beaurain, B. Pelissier, J. Boussey

LTM-CNRS, GRENOBLE, France

PARALLEL SESSION 6B: NANOWIRES AND NANOWIRE DEVICES, 13:40 - 15:20

13:40 - 14:00

O-NANO-25 - 3D Stacked Arrays of Fins and Nanowires on Bulk Silicon

M. Bopp¹, P. Coronel², C. Hibert¹, M. Ionescu¹

¹EPFL, LAUSANNE, Switzerland

²LITEN-CEA, GRENOBLE, France

14:00 - 14:20

O-NANO-26 - Focused gold ions beams for localized epitaxy of semiconductor nanowires

J. Gierak, A. Madouri, E. Bourhis, L. Travers, J.C. Harmand
LPN-CNRS, MARCOUSSIS, France

14:20 - 14:40

O-NANO-27 - Confined VLS growth and characterization of silicon nanoribbons

A. Lecestre¹, E. Dubois¹, A. Villaret², T. Skotnicki², P. Coronel³, G. Patriarche⁴, C. Maurice⁵
¹IEMN, VILLENEUVE D'ASCQ, France
²STMicroelectronics, CROLLES, France
³CEA-LITEN, GRENOBLE, France
⁴LPN, MARCOUSSIS, France
⁵Ecole des Mines, ST ETIENNE, France

14:40 - 15:00

O-NANO-28 - Vertical gate all around Si nanowire MOSFETs

A. Lugstein, M. Steinmair, C. Henkel, E. Bertagnolli
Vienna technical university, VIENNA, Austria

15:00 - 15:20

O-NANO-29 - Silicon nanowires with lateral uniaxial tensile stress profiles for high mobility gate-all-around MOSFETs

M. Najmzadeh¹, L. De Michielis¹, D. Bouvet¹, P. Dobrosz², S. Olsen², A.M. Ionescu¹
¹EPFL, LAUSANNE, Switzerland
²Newcastle University, NEWCASTLE UPON TYNE, United Kingdom

PARALLEL SESSION 6C: NANOFUIDICS, 13:40 - 15:30

13:40 - 14:10 *INVITED PRESENTATION*

O-LIFE-10 - A tiny revolution: nanometer-scale tools for synthetic biology

G. Timp
University of Illinois, United States of America

14:10 - 14:30

O-LIFE-11 - Direct FIB fabrication and integration of 'single nanopore devices' for the detection of macromolecules

J. Gierak¹, B. Schiedt¹, L. Bacri², L. Auvray², A-L. Biance³, E. Bourhis¹, A. Madouri¹, G. Patriarche¹, R. Jede⁴, J. Pelta⁵
¹LPN-CNRS, MARCOUSSIS, France
²MPI Université Evry Val d'Essonne, 91025 EVRY, France
³LPMC, UMR 5586, Univ. Claude Bernard Lyon, 69622 VILLEURBANNE, France
⁴RAITH GmbH, 44227 DORTMUND, Germany
⁵Université de Cergy-Pontoise, 95203 CERGY-PONTOISE, France

14:30 - 14:50

O-LIFE-12 - DNA stretching in nanofluidic chips fabricated by NIL and anodic bonding

E. Abad¹, A. Juarros¹, A. Retolaza¹, S. Merino¹, R. Marie², A. Kristensen²
¹Fundacion TEKNIKER, EIBAR, Spain
²MIC, Technical University of Denmark, LYNGBY, Denmark

14:50 - 15:10

O-LIFE-13 - Nanopatterned polymethylpentene substrates fabricated by injection molding for biophotonic applications

R. Hainberger¹, R. Bruck¹, N. Kataeva¹, R. Heer¹, A. Köck¹, P. Czepl², K. Kaiblinger², F. Pipelka², B. Bilenberg³
¹Austrian Institute of Technology, VIENNA, Austria
²Hubertus Goller GmbH, KLOSTERNEUBURG, Austria
³NIL Technology ApS, KONGENS LYNGBY, Denmark

15:10 - 15:30

O-LIFE-14 - Measuring nanopores resized by electron-beam induced deposition

R. Kox, C. Chen, S. Deheryan, L. Lagae, G. Borghs
IMEC, LEUVEN, Belgium

PARALLEL SESSION 7A: CELL INTERFACES, 16:00 - 17:30

16:00 - 16:30 *INVITED PRESENTATION*

O-LIFE-20 - The bio-electronic interface in brain implants - from materials to electronics and back

W. Eberle

IMEC, LEUVEN, Belgium

16:30 - 16:50

O-LIFE-21 - Simulation and Fabrication of a Novel Flexible Polyimide-Based Bio-microelectrode Array for Deep Brain Stimulation

P.C-P. Chao

National Chiao Tung University, HSINCHU, Taiwan

16:50 - 17:10

O-LIFE-22 - AFM study of F-actin on chemically modified surfaces

M. Naldi¹, S. Dubroiu², D.V. Nicolau², V. Andrisano¹

¹Bologna University, BOLOGNA, Italy

²Liverpool University, LIVERPOOL, United Kingdom

17:10 - 17:30

O-LIFE-23 - Subcellular Force Dynamics of Outgrowing Axons Measured by Free-standing Nanowires.

C. Prinz, W. Hällström, D. Suyatin, L. Samuelson, L. Montelius, M. Kanje

Lund University, LUND, Sweden

PARALLEL SESSION 7B: CARBON NANOTUBE AND DIAMOND APPLICATIONS, 16:00 - 17:30

16:00 - 16:20

O-NANO-30 - Fabrication and mechanical characterization of freestanding carbon nanosheets from self-assembled monolayers

A. Götzhäuser, X. Zhang, C.T. Nottbohm, A. Turchanin, A. Beyer

Universität Bielefeld, BIELEFELD, Germany

16:20 - 16:40

O-NANO-31 - Massive manufacture and characterization of single-walled carbon nanotube field effect transistors

I. Martin-Fernandez¹, M. Sansa¹, M.J. Esplandiu², E. Lora-Tamayo¹, F. Perez-Murano¹, P. Godignon¹

¹IMB-CNM-CSIC, CERDANYOLA DEL VALLÈS, Spain

²Departamento de Quimica UAB, CERDANYOLA DEL VALLÈS, Spain

16:40 - 17:00

O-NANO-32 - Ion beam fabrication of natural single crystal diamond nano-tips for an AFM

J. Kawamura, T. Nagase, S. Pahlovy, I. Miyamoto

Tokyo University of Science, NODA, Japan

17:00 - 17:30 *INVITED PRESENTATION*

O-NANO-33 - Controlling the growth of carbon nanotubes for electronic devices

M. Mann

Cambridge University, United Kingdom

PARALLEL SESSION 7C: NEMS, 16:00 - 17:30

16:00 - 16:30 *INVITED PRESENTATION*

O-MEMS-11 - Single walled carbon nanotube transistors as functional building blocks for sensors

C. Hierold, C. Roman, M. Mattmann, T. Helbling

ETH Zurich - Micro and Nanosystems, ZURICH, Switzerland

16:30 - 16:50

O-MEMS-12 - Hybrid circuit analysis of a suspended-gate silicon nanodot memory (SGSNM) cell

M.A. García-Ramírez, Y. Tsuchiya, H. Mizuta

University of Southampton, SOUTHAMPTON, United Kingdom

16:50 - 17:10

O-MEMS-13 - Piezoresistive cantilevers based on Si nanowire array strain gauges

M. Fernandez-Regulez, J.A. Plaza, A. San Paulo

Instituto de Microelectronica de Barcelona (IMB-CNM), BELLATERRA, Spain

17:10 - 17:30

P-MEMS-30 - Fabrication of robust carbon nanotube microstructures by elastocapillary densification

M. De Volder¹, D. Vidaud², P. Sei-Jin², S. Tawfick², J. Hart²

¹KULeuven/IMEC, LEUVEN, Belgium

²University of Michigan, ANN ARBOR, United States of America