

MNE 2018 Scientific Program

Tuesday 25 September 2018

Plenary session I

Chairs: Massimo De Vittorio, IIT & Anja Boisen, DTU

9:00	Opening		
9:15	Bio-responsive hybrid materials for regenerative medicine and biosensing <i>Molly M. Stevens, Imperial College London, UK</i>		
10:00	Mild methods to engineer fragile materials micro and nano systems <i>Jürgen Brugger, EPFL, Switzerland</i>		
10:45	Poster Session I/Exhibition		
12:15	Lunch		
	01-10: Micro- and Nanofluidic Systems and Applications <i>Chairs: Maria Tenje, Uppsala University & Rodolphe Marie, DTU</i>	01-11: Energy & Catalysis <i>Chairs: Celestino Padeste, PSI & Tim Booth, DTU</i>	01-12: EUV/UV-NIL <i>Chairs: John Randall, Zyvex Labs & Yoshihiko Hirai, Osaka Prefecture University</i>
	Auditorium 10	Auditorium 11	Auditorium 12
13:15	Invited: Nanofluidics and Nano-optics for In-Line DNA Optical Mapping <i>Irene Fernandez-Cuesta, Hamburg University, Germany</i>	Monolithic Nanothermocouples <i>Sylvain Blanco Alvarez, University of Liège</i>	Research Activities of Extreme Ultraviolet Lithography at University of Hyogo <i>Takeo Watanabe, University of Hyogo</i>
13:30		Fabrication and characterization of a suspended micro-reformer for DME steam reforming <i>Marco Bianchini, IREC</i>	High-resolution patterning by EUV interference lithography with a compact exposure tool <i>Sascha Brose, RWTH Aachen University</i>
13:45	Nanometer precise separation of nanoparticles using Brownian motors <i>Armin Knoll, IBM Research-Zurich</i>	High-Power 3D Lithium-Ion Microbattery Based on Imprinted Electrodes and Layer-by-Layer Stacking <i>James Watkins, University of Massachusetts</i>	Numerical modeling method to reproduce UV imprint process using thermo-viscoelastic constitutive law <i>Ryunosuke Yamashita, Tokyo Institute of Technology</i>
14:00	Fabrication and Characterization of a Nanopore-Integrated Graphene Nanoelectrode Biosensor <i>Jacob Louis Swett, University of Oxford</i>	Large area free-standing membranes supported by doped silicon slabs for micro power sources <i>Nerea Alayo, IREC (Catalonia Institute for Energy Research)</i>	Filling behavior of diacrylate monomers into silica holes of around 10 nm in UV nanoimprinting <i>Shunya Ito, Tohoku University</i>
14:15	Magnetic Levitation-Based Protein Detection Using Magnetic Nanoparticle Labels in a Microcapillary <i>Sena Yaman, Izmir Institute of Technology</i>	Invited: Developing Active Sulfide- and Phosphide-based Electrocatalysts for Sustainable Hydrogen Production <i>Jakob Kibsgaard, DTU, Denmark</i>	UV-NIL-compatible positive-tone EB resist for 3D hybrid nanostructures <i>Takao Okabe, Tokyo University of Science</i>
14:30	Encapsulation-on-demand: retrieving analytes of interest from on-chip electrokinetic separations <i>Xander F. van Kooten, IBM Research – Zurich</i>		Technological Challenges and Opportunities in R2R Nanoimprint Lithography for flexible Applications <i>Thomas Exlager, Coatema Coating Machinery GmbH</i>

14:45	Break		
	02-10: Lab on a Chip <i>Chairs: Irene Fernandez-Cuesta, Hamburg University & Rodolphe Marie, DTU</i>	02-11: MEMS/NEMS <i>Chairs: Silvan Schmid, TU Wien & Anpan Han, DTU</i>	02-12: NIL/R2R <i>Chairs: Maan Alkaisi, University of Canterbury & Rafael Taboryski, DTU</i>
	Auditorium 10	Auditorium 11	Auditorium 12
15:05	Invited: Macromolecules and Microsystems in Biology and Medicine <i>Jean Louis Viovy, CNRS, France</i>	Integrated Switched-mode Power Supply on a Chip by 3D MEMS Technology <i>Hoa Thanh Le, Technical University of Denmark</i>	High-throughput structuring of fused silica glass <i>Frederik Kotz, Karlsruhe Institute of Technology</i>
15:20		Elastic strain engineering for ultralow mechanical dissipation <i>Mohammad Jafar Beryhi, EPFL</i>	Tailoring the wetting properties of industrial polymer films by hierarchical (micro-nano) patterning <i>Aritz Retolaza, IK4-Tekniker</i>
15:35	Microscope-on-a-disc: Wireless Powered/Transmitted Real-time Microscopic Imaging <i>Edwin En-Te Hwu, Technical University of Denmark</i>	Invited: Three-dimensional integration for MEMS and microsensors <i>Zheyao Wang, Tsinghua University, China</i>	Novel concept for the fabrication of individual polymeric hybrid micro-optical components <i>Johannes Wolf, micro resist technology GmbH</i>
15:50	Programmable hydraulic resistor for microfluidic chips using electrogate arrays <i>Marie Laetitia Salva, IBM Research – Zurich</i>		Direct nanoimprinting of reflow enhanced antireflective moth-eye structures in chalcogenide glass <i>Mikkel Lotz, Technical University of Denmark</i>
16:05	Integrated, fast, cost effective, semi-automated Lab on a Chip for foodborne pathogen detection <i>Evangelos Gogolides, NCSR Demokritos</i>	Clamped-clamped beam resonator with embedded fluidic nanochannel: a flexible fabrication process <i>Davide Scaiola, Politecnico di Torino</i>	Invited: 3D functional surfaces - Methods and Materials for Nano- and Microstructuring on large scale <i>Matthias Worgull, KIT, Germany</i>
16:20	A passive device for chemotaxis studies <i>Gerardo Perozziello, University Magna Graecia of Catanzaro</i>	Freestanding patterns for polymer actuated and sequential folding of 3D micro-origami <i>Robert Kirchner, TU Dresden</i>	
16:35	Break		

	03-10: 3D printing & Drug Delivery <i>Chairs: Line H. Nielsen, DTU & Ioannis S. Chronakis, DTU</i>	03-11: Micro- and Nanoelectronic Devices <i>Chairs: Zahid Durrani, Imperial College & Anpan Han, DTU</i>	03-12: Alternative Lithography <i>Chairs: Jürgen Brugger, EPFL & Stephan S. Keller, DTU</i>
	Auditorium 10	Auditorium 11	Auditorium 12
16:55	Invited: Inkjet printing and 3D printing technologies in manufacture of drug delivery systems <i>Mirja Palo, Åbo Akademi, Finland</i>	GaSb and InAs Integration on Si Using Selective Epitaxy in Oxide Cavities for Low-Power Electronics <i>Clarissa Convertino, IBM Research GmbH</i>	Advances in three-dimensional nanofabrication via ice lithography <i>Yu Hong, Zhejiang University</i>
17:10		Directed self-assembly of block copolymers for the fabrication of FinFETs and nanomechanical devices <i>Christian Pinto Gómez, Instituto de Microelectrónica de Barcelona (IMB-CNM CSIC)</i>	Direct nanowire integration onto microcantilever beams by dry photoresist film lithography <i>Madeleine Nilsen, Universität Ulm</i>
17:25	Towards overcoming the mucus biobarrier using light-controlled microrobots <i>Ada-Ioana Bunea, Technical University of Denmark</i>	Invited: Heterogeneous 3-D integration of NEMS and ICs <i>Dinesh Pamunuwa, University of Bristol, UK</i>	Sub-Wavelength Holographic Lithography technology for production of non-planar 3D holographic image <i>Vitaly Valerievich Chernik, Nanotech SWHL</i>
17:40	Solvent-free fabrication and loading of polycaprolactone microcontainers for oral drug delivery <i>Zarmeena Abid, Technical University of Denmark</i>		HMCL fabrication methods of plasmonic structures for CD measurements <i>Gunnar Klös, Aarhus University</i>
17:55	Enhanced insulin permeability by use of microcontainers <i>Jacob Rune Jørgensen, University of Copenhagen</i>	Vertically integrated top-down GaN nanowire arrays for enhancement-mode transistors, <i>Hutomo Suryo Wasisto, Technische Universität Braunschweig</i>	'Double' Displacement Talbot Lithography <i>Pierre Chausse, University of Bath</i>
18:10	Multiplexing Paper Microfluidic Drug-Drug Interaction Assays <i>Elisa Ollikainen, University of Helsinki</i>	Arrays of Vertical GaN Nanorods with Freestanding Top Contacts for Local Heating <i>Nicolai Markiewicz, TU Braunschweig</i>	Reduction of metal hard mask roughness for sub-20 nm resolution lithography and pattern transfer <i>Alexei Bogdanov, Western Digital Corporation</i>
19:00	Bus transport to Copenhagen City Center Reception at Town Hall		
21:00	Young People Event at Heidi's Bier Bar, Vestergade 18		

Wednesday 26 September 2018

Plenary session II

Chairs: Urs Staufer, TU Delft & Hubert Brückl, Danube University Krems

9:00	Award Ceremony		
9:15	Digital Atomic Scale Fabrication, <i>MNE fellow: John Randall, Zyvex Labs, Texas, USA</i>		
10:00	Self-assembled microtubular devices: From energy storage to cellular cyborg machinery, <i>Oliver Schmidt, Chemnitz University of Technology, Germany</i>		
10:45	Poster Session II/Exhibition		
12:15	Lunch		
	04-10: Bioinspired Technology & Biomimetic Surfaces <i>Chairs: Matthias Worgull, KIT & Leticia Hosta-Rigau, DTU</i>	04-11: Chemical/biosensors <i>Chairs: Jin-Woo Choi, Louisiana State University & Kinga Zór, DTU</i>	04-12: Industry Session <i>Chairs: Michel Despont, CSEM & Tim Booth, DTU</i>
	Auditorium 10	Auditorium 11	Auditorium 12
13:15	Invited: Informed design for biomaterials <i>Nikolaj Gadegaard, University of Glasgow, UK</i>	Flexible Plasmonic Biosensors for Naked-eye Detection of Biogenic Amines as Food Freshness Indicator <i>YingYing Wu, National Tsing Hua University</i>	New high etch resistant high resolution silsesquioxane based resist for DUV/EUV & e-beam lithography <i>Maik Gerngroß, Allresist GmbH</i>
13:30		A micromotor combining molecular imprinted polymer and quantum dots for rapid and selective sensing <i>Yi Sun, Technical University of Denmark</i>	Film with Sub-micron High Resolution Pattern Printed by 250mm-wide Seamless Roller Mold <i>Naoto Ito, Asahi Kasei Corporation</i>
13:45	Nanoimprint Lithography on 3D printed implants <i>Elena Guillén, Profactor GmbH</i>	Invited: Single-molecule analysis with silicon nitride drums <i>Silvan Schmid, TU Wien, Austria</i>	High Volume Manufacturing of Novel Photonic Devices by Nanoimprint Lithography <i>Martin Eibelhuber, EVGroup</i>
14:00	R2R UV Nanoimprint Lithography for Large Area Manufacturing of Bionic Surfaces <i>Dieter Nees, JOANNEUM RESEARCH GmbH</i>		Prototyping for blood-plasma separation <i>Rene Sanders, Philips Innovation Services</i>
14:15	Antibacterial patterns for bone implants produced by EBID <i>Lidy Fratila-Apachitei, TU Delft</i>	Determining viability of living specimens utilizing nanomechanical fluctuation <i>Shangquan Wu, University of Science and Technology of China</i>	Invited: NanoFrazer lithography: Status, challenges and opportunities <i>Felix Holzner, SwissLitho, Switzerland</i>
14:30	Evaluation of the capacitive behavior of 3D carbon electrodes for sub-retinal prosthesis <i>Rasmus Schmidt Davidsen, Technical University of Denmark</i>	Microcantilever array instrument based on optical fiber <i>Qingchuan Zhang, University of Science and Technology of China</i>	

14:45	Break		
	05-10: Organ on a Chip <i>Chairs: Nikolaj Gadegaard, University of Glasgow & Line H. Nielsen, DTU</i>	05-11: Carbon MEMS <i>Chairs: Zheyao Wang, Tsinghua University & Anpan Han, DTU</i>	05-12: Etching <i>Chairs: Niels Tas, University of Twente & Henri Jansen, DTU</i>
	Auditorium 10	Auditorium 11	Auditorium 12
15:05	Invited: 2D and 3D patterning of biological hydrogels for organ-on-chip application <i>Maria Tenje, Uppsala University, Sweden</i>	NAM-IR with completely free-standing pyrolytic carbon string resonators for paracetamol detection <i>Long Nguyen Quang, Technical University of Denmark</i>	Sub-20 nm Si pattern transfer with high aspect ratio via Fullerene-based spin-on-carbon hard masks <i>Li-Ting Tseng, Paul Scherrer Institut</i>
15:20		Ultra-thin film carbon mechanical resonator fabrication and its characterization <i>Reo Kometani, University of Tokyo</i>	Atmospheric plasma self-assembly via photoresist ashing: A new route to maskless nanofabrication <i>Evangelos Gogolides, NCSR Demokritos</i>
15:35	Towards the creation of cellular implants to substitute for missing cellular function <i>Leticia Hosta-Rigau, Technical University of Denmark</i>	Invited: Expanding the toolbox to process carbonaceous materials: from photolithography to robocasting and origami folding <i>Rodrigo Martinez Duarte, Clemson University, USA</i>	Fabrication of ultra-dense sub-10 nm Si nanowire arrays by block copolymer-hard mask methodology <i>Tandra Ghoshal, Trinity College Dublin</i>
15:50	Nano-microstructured delamination-free layered scaffolds for tissue engineering applications <i>Fatemeh Ajalloueiian, Technical University of Denmark</i>		Hybrid Lithography based Fabrication of 3D Patterns by Deep Reactive Ion Etching <i>Laura Vera Jenni, ETH Zürich</i>
16:05	Break		
	06-10: Resists & Materials; MEE YIA Lecture <i>Chairs: Dieter Kern, University Tübingen & Stephan S. Keller, DTU</i>	06-11: Metrology <i>Chairs: Moh'd Rezeq, Khalifa University & Edwin En-Te Hwu, DTU</i>	06-12: 3D Manufacturing I <i>Chairs: Helmut Schift, PSI & Henri Jansen, DTU</i>
	Auditorium 10	Auditorium 11	Auditorium 12
16:25	Lift-off assisted Few Layers Graphene patterning, <i>Alessio Verna, Politecnico di Torino</i>	3-Dimensional mold profile correction for resin shrinkage in micro-nano molding process, <i>Yoshihiko Hirai, Osaka Prefecture University</i>	Invited: Concave and convex oxide corner lithography in silicon based 3D-nanomachining <i>Niels Tas, University of Twente, The Netherlands</i>
16:40	Improved nanowire alignment through frequency-varying dielectrophoresis <i>Alexander Gumprich, TU Dortmund University</i>	Machine learning in the metrology and characterization of nanostructures and lithography patterns <i>Vassilios Constantoudis, NCSR Demokritos</i>	

16:55	MEE Young Investigator Award lecture: Tapered Optical Fibers for Multifunctional Neural Interfaces <i>Ferruccio Pisanello, Istituto Italiano di Tecnologia, Italy</i>	High resolution, spatially resolved surface potential investigations on HSMG using STP <i>Krzysztof R. Gajewski, Wrocław University of Technology</i>	Three dimensional engineering of silicon micro- and nanostructures <i>Bingdong Chang, Technical University of Denmark</i>
17:10		Identifying surface elements in STM images using Neural Networks <i>Ehud Fuchs, Zyvex Labs</i>	High aspect ratio Silicon nanostructures by Vapor Metal Assisted Chemical Etching <i>Lucia Romano, ETH Zurich</i>
18:00	Bus transport to Copenhagen City Center Conference dinner - Wallmanns		

Thursday 27 September 2018			
	07-10: Biosensors <i>Chairs: Jean-Louis Viovy, CNRS & Maria Dimaki, DTU</i>	07-11: Photonic Systems <i>Chairs: Monika Fleischer, University Tübingen & Lars Hagedorn Frandsen, DTU</i>	07-12: Physical/wearable Sensors <i>Chairs: Francesc Pérez-Murano, CNM-CSIC & Yi Sun, DTU</i>
	Auditorium 10	Auditorium 11	Auditorium 12
9:00	External Field-mediated Trapping of Bacteria for Rapid and Selective Bacteria Detection <i>Shiho Tokonami, Osaka Prefecture University</i>	Design of subwavelength grating based polarizer at visible wavelength <i>Zongyao Yang, Fudan University</i>	Silk/Ni-P/TiO ₂ for Flexible Photocatalytic Device <i>Wan-Ting Chiu, Tokyo Institute of Technology</i>
9:15	Nanopatterning of bio-functionalized silk fibroin layers for reversible optical biosensing <i>Augusto Marquez, IMB-CNM (CSIC)</i>	Optical vortex micro-generators in diamond <i>Gediminas Seniutinas, Paul Scherrer Institute</i>	Integration of silver nanowires for piezoresistive sensing of SU-8 cantilevers <i>Hana Han, ETH Zurich</i>
9:30	Biosensing with common mode rejection using asymmetric nanofluidic grating <i>Foelke Purr, TU Braunschweig</i>	Invited: 2D and 3D structural color printing <i>Joel Yang, Singapore University of Technology and Design, Singapore</i>	Thermomechanical understanding of hydrate-anhydrate transformations using resonant MEMS <i>Peter Ouma Okeyo, University of Copenhagen</i>
9:45	Elastic fiber-based sensor patches for healthcare <i>Siyao Zang, Beijing University of Posts and Telecommunications</i>		CMOS compatible energy autonomous wearable sensor system for in situ sweat analysis <i>Junrui Zhang, EPFL</i>
10:00	Real-Time, Single Cell, Size Measurements using a Facile, Multimode Microwave Resonator <i>Selim Hanay, Bilkent University</i>	Nanoimprinting of Photonic Elements on a Fiber for Wavefront Manipulation <i>Stefano Cabrini, Lawrence Berkeley National Laboratory</i>	Wearable sensor for real time temperature sensing <i>Wenlong Wang, Guangzhou University</i>

10:15	Opto-microfluidic platform for testing enzyme activity in biofunctionalized polymer brushes <i>Celestino Padeste, Paul Scherrer Institut</i>	Fabrication of metasurfaces on fiber end faces <i>Uwe Huebner, Leibniz Institute of Photonic Technology (IPHT)</i>	Humidity barrier coatings for nanoparticle-based strain sensors deposited by atomic layer deposition <i>Dimitris Tsoukalas, National Technical University of Athens</i>
10:30	Break		
	08-10: 3D Manufacturing II <i>Chairs: Rodrigo M. Duarte, Clemson University & Stephan S. Keller, DTU</i>	08-11: III-V on Silicon Integration <i>Chairs: Dinesh Pamunuwa, University of Bristol & Kresten Yvind, DTU</i>	08-12: Nanooptics <i>Chairs: Joel Yang, SUTD & Hutomo S. Wasisto, TU Braunschweig</i>
	Auditorium 10	Auditorium 11	Auditorium 12
10:50	3D nanofabrication inside rapid prototyped microfluidic channels showcased by wet-spinning of single micrometre fibers <i>Jonas Lölsberg, RWTH Aachen University</i>	Invited: Monolithic integration of III-Vs on silicon for electronic and photonic applications <i>Kirsten Moselund, IBM Zurich, Switzerland</i>	Gap Plasmon in Magnetically-Actuated SiN Strings <i>Nicolas Pierre Michel Cazier, Technical University of Vienna</i>
11:05	Shrinking-induced colors in 3D photonic crystals <i>Yejing Liu, Singapore University of Technology and Design</i>		SHG scanning microscopy of plasmonic oligomers <i>Monika Fleischer, University of Tübingen</i>
11:20	Mesoscale 3D printing with micrometric resolution <i>Angelo Accardo, LAAS-CNRS</i>	Efficient Electrical Transport through an InP-on-Si Hybrid Interface bonded at 300°C <i>Anne Talneau, CNRS</i>	Polymeric opto-mechanical systems for sensing applications <i>Mar Alvarez, Instituto de Microelectronica de Barcelona</i>
11:35	Versatile 3D GaN processing for integrated high-aspect-ratio vertical nanodevices <i>Jan Gülink, Technical University Braunschweig</i>	Direct Wafer Bonding of III-V Layers on Processed Wafers for 3D Sequential Integration <i>Clarissa Convertino, IBM Research</i>	Micromechanical string resonators as a tool to study thermoplasmonics, <i>Varadarajan P. Rangacharya, Technical University of Denmark</i>
11:50	Break		
	09-10: Deposition <i>Chairs: Jean-Francois de Marneffe, IMEC & Evangelos Gogolides, NSCR Demokritos</i>	09-11: Low Dimensional Systems <i>Chairs: Kirsten Moselund, IBM Zurich & Kresten Yvind, DTU</i>	09-12: Nanomagnetism <i>Chairs: J. Alexander Liddle, NIST & Yi Sun, DTU</i>
	Auditorium 10	Auditorium 11	Auditorium 12
12:10	Invited: Focused ion beam induced deposition of nano-superconductors <i>José María De Teresa, CSIC-University of Zaragoza, Spain</i>	Quality Assessment of 2D Materials <i>David Mackenzie, Technical University of Denmark</i>	Ferromagnetic resonance study on Ni wire <i>Akinobu Yamaguchi, University of Hyogo</i>
12:25		Room Temperature Quantum Dot Transistors Using Field-Emission Scanning Probe Lithography <i>Faris Abualnaja, Imperial College London</i>	Fabrication of Soft X-ray Transparent Lamellas of Epitaxial Complex Oxide Micromagnets <i>Einar Digernes, Norwegian University of Science and Technology</i>

12:40	Spray coating of Ba(Sr)TiO ₃ nanoparticles: a low-cost and scalable process for thin dielectric films <i>Emmanuel Tetsi, University of Sherbrooke</i>	Fabrication of deuterated amorphous silicon waveguides for nonlinear photonic applications <i>Lars Hagedorn Frandsen, Technical University of Denmark</i>	Invited: Optomagnetic characterization and detection: Inexpensive, fast and sensitive characterization of magnetic nanoparticles and detection of biomolecules <i>Jeppe Fock, DTU, Denmark</i>
12:55	Biocompatible piezoresistive sensor layers of a-C:H:Me prepared by reactive HIPIMS <i>Maria Grein, Technical University Braunschweig</i>	On-chip nano-electro-mechanical switches for quantum photonics applications <i>Camille Papon, University of Copenhagen</i>	
13:10	Lunch		
	Plenary session III <i>Chairs: Christophe Vieu, LAAS-CNRS & Anders Kristensen, DTU</i>		
14:10	Emerging Materials for Nanophotonics and Plasmonics: Roads Ahead <i>Alexandra Boltasseva, Purdue University, USA</i>		
14:55	Biosensors – Long live the revolution! <i>Anthony Turner, Linköping University, Sweden</i>		
15:40	Closing remarks		
16:30	Optional: Cleanroom tour at DTU Danchip Registration for bus transport and tour at registration		