NNT '09 Program

Wednesday, November 11

12:00 Exhibit set-up, Room J2/J3, San Jose Convention Center
12:00 Registration
17:00 **Welcome Reception and Equipment Exhibit, Room J2/J3, San Jose Convention Center**

Thursday, November 12, Room J1/J4 , San Jose Convention Center

Plenary Session - *Session Chairs: S. Chou (Princeton) & L. Montelius (Lund)*

8:15		Welcome: Stephen Chou and Christie Marrian		
8:30	Plenary	NNT is Losing the Propaganda War	Fabian Pease	Stanford University
9:00	Invited 1	Template Infrastructure for Nanoimprint Lithography	Nobuhito Toyama	Dai Nippon Printing
9:20	Invited 2	NaPANIL: Consolidation of Nanoimprinting for Production	Jouni Ahopelto	VTT Microsystems and Nanoelectronics
9:40	Invited 3	Shrink-Induced Nanostructures	Michelle Khine	University of California, Irvine

10:00 Break

Magnetics/Biology/Solar - *Session Chairs: G. Willson (U. Texas) & H. Schift (PSI)*

10:30	Invited 4	The Nano-imprinting Process towards Patterned Media Manufacturing	Tsai-Wei Wu	HGST
10:50	c1	Large Scale Fabrication of Nanoimprinted Magnetic Nanoparticles with Self-Assembled Templates	Wei Hu	Stanford University
11:05	c2	Photocatalytic Nanolithography: An Emergent Patterning Technique Relevant to Biotechnology	Jane P Bearinger	LLNL
11:20	c3	Fabrication of 3D Cell Containers with Integrated Topography by Combined Microscale Thermoforming and Thermal Nanoimprint	Arne Schleunitz	Paul Scherrer Institut
11:35	c4	Nanoimprinting of Subphthalocyanines for Photovoltaic Applications	Xiaogan Liang	Lawrence Berkeley National Laboratory
11:50	c5	Nanopatterned anode for organic solar cell by nanoimprint	Dae-Geun Choi	Korea Institute of Machinery & Materials

12:05 Lunch

Electronics/Optoelectronics - *Session Chairs: J. Randall (Zyvex) and S. Matsui (Hyogo)*

13:30	Invited 5	Nanoimprint lithography for organic thin film transistors	Barbara Stadlober	Joanneum Research
13:50	c6	Fabrication of organic TFT arrays on an A4-sized flexible sheet using microcontact printing	Hiroshi Fujita	Dai Nippon Printing Co., Ltd.
14:05	c7	Printing of Sub- 20 nm Wide Graphene Ribbon Arrays over a Large Area by Imprinting Nanostructures on a Graphite Stamp and Electrostatic Force Assisted Bonding	Chao Wang	Princeton University
14:20	c8	Planar Memristive Device Arrays Fabricated Using Nanoimprint Lithography	Qiangfei Xia	HP Labs
14:35	c9	Coupled Nanopillar Antenna Array for Large Surface Enhanced Raman Scattering Fabricated Using Nanoimprint Lithography on Wafer-Scale Area	Wendi Li	Princeton University
14:50	c10	Highly Sensitive Surface-enhanced Raman Spectroscopy Sensors by 3-D Nanoimprint Lithography	Wei Wu	HP Labs, Hewlett-Packard Co.
15:05	c11	High-extraction efficiency of nanoimprinted plasmonic crystals coupled to photonic crystals	Vincent Reboud	Institut Catalan of Nanotechnology

15:20 **NNT'09 Poster Session, Rooms J2/J3:** *Session Chairs C. Marrian (Spansion), W. Wu (HP), H. Ge (Nanjing) and J. Randall (Zyvex)*

Process

p1	Casting Metal Microstructures from a Three-Dimensional Flexible Mold	Andrew H Cannon	University of Illinois at Urbana-Champaign
p2	3D Features on Plastic Substrate by Combining Thermal and UV-nanoimprinting	Tomi Haatainen	VTT
p3	Fabrication of Uniform Dense Metal Dot Arrays over a Large Area on Flexible Plastic Substrate Using UV Nanoimprint Lithography and Self-Perfection by Liquefaction (SPEL)	Chao Wang	Princeton University
~~p4~~	Direct Metal Pattering with Embossed Electrochemical Stamps and Role of Defoaming	Anil Kumar	University of Illinois at Urbana-Champaign
p5	Direct patterning of gold electrodes on ceramic substrates by Imprint Molding (IM) in microcapillaries	Michael T Demko	University of California, Berkeley
p6	Stacking of Metamaterial Structures made of gold	Iris Bergmair	PROFACTOR GmbH
p7	Nanostructure fabrication by room-temperature nanoimprint using liquid-phase HSQ with PDMS mold	Yuji Kang	University of Hyogo

withdrawn

Magnetics/Biology/Solar

p8	Rapid fabrication of Sub-micron Magnetic line using electromagnetic force-assisted UV-imprinting	Ting Ting Wen	National Tsing Hua University
~~p9~~	Opto-thermally actuated polymer chips for manipulation of single genomic-length DNA molecules	Lasse H Thamdrup	Technical Univesity of Denmark
p10	DNA stretching in nanofluidic chips fabricated by NIL and anodic bonding	Estefania Abad	Fundacion TEKNIKER
p11	Replication of cicada wings' nano-patterns by hot embossing and UV nanoimprinting	Sung-Hoon Hong	Korea University
p12	Implant-compatible titanium with biofunctional nanoridges.	Maciej Domanski	University of Twente
p13	Thermodynamic Underpinnings of Cell Alignment on Controlled Topographies	Yifu Ding	University of Colorado, Boulder
p14	Fabrication of Polymeric Nanostructures for Organic Solar Cells by Nanoimprint Lithography	Seok Kwan Hong	Korea Institute of Industrial Technology

withdrawn

Electronics/Optoelectronics

p15	Thin film transistors on PEN foil fabricated by imprint lithography	Pieter F Moonen	MESA+ Institute - University of Twente
p16	Phase change nano-pillar device fabrication using nanoimprint lithography	Sung-Hoon Hong	Korea University
p17	Residue free NIL structuring techniques for organic electronics	Herbert Gold	Joanneum Research
p18	Self-aligned nano imprinted organic TFTs	Christoph Auner	Joanneum Research
p19	High-photostable solid-state organic distributed feedback laser fabricated via thermal nanoimprint lithography	Vera Trabadelo	Tekniker
p20	Configuration Control of Photoreactive Polymer Liquid Crystal by using Thermal Nanoimprint Mold Pattern	Makoto Okada	University of Hyogo
p21	UV-Enhanced Substrate Conformal Nanoimprint Lithography Technique for Photonic Crystals Patterning in LED Manufacturing	Michael Hornung	Suss MicroTec Lithography GmbH
p22	Nanoimprint Alignment of Smectic Liquid Crystals	Youngwoo Yi	University of Colorado
p23	Reverse Nanoimprinting Technique for Fabricating a Polarizer of Liquid Crystalline Polymer	Sheng Wen Lin	ITRI
p24	Fabrication of Flexible Nanowire Grid Polarizer Based on Contac-Transferred and Mask-Embedded (CMEL) Lithography	Cheng-Yu Chiu	National Cheng Kung University
p25	Distributed Feedback (DFB) Laser Fabrication using step and flash Imprint and i-line Stepper Lithography	Alexei Bogdanov	Canadian Photonics Fabrication Centre
p26	Nanoimprint with atmospheric plasma treated mold for LED applications	Fuh-Yu Chang	National Taiwan University for Science and Engineering
p27	Mass fabrication of resistive switching memory by UV-NIL process	Ki-don Kim	Korea Institute of Machinery & Materials
p28	Plastic nanoelectromechanical mass sensor	Gang Luo	Lund University

15:20 **NNT'09 Poster Session, Rooms J2/J3:** *Session Chairs C. Marrian (Spansion), W. Wu (HP), H. Ge (Nanjing) and J. Randall (Zyvex)*

Modeling/Materials

p29	Nano-scale Spreading of Resist Droplet in Nanoimprint Process	Ryuta Washiya	Hitachi Ltd.
p30	Impact of Resist Shrinkage in UV nanoimprint lithography	Mayuko Shibata	Osaka Prefecture University
p31	Study on Resist Filling Process by Capillary Force in UV-Nanoimprint Lithography	Yoshinori Nagaoka	Osaka Prefecture University
p32	Effects of air bubble trapping on the residual layer thickness of UV nanoimprint lithography using capacity-equalized mold	Qing Wang	National Institute of Advanced Industrial Science
p33	Molecular dynamics study on resist filling process into single nano scale cavity	Akihiro Taga	Osaka Prefecture University
p34	Study on Bubble Trapping in UV Nanoimprint Lithography	Yoshinori Nagaoka	Osaka Prefecture University
~~p35~~	Role of confinement on material flow in nano-structured geometry withdrawn	Jérémie Teisseire	Surface du Verre et Interface - CNRS/Sai
p36	Effect of polymer resist thickness on density variation in nanoimprint lithography	Lee Dong-Eon	Seoul National University
p37	Adhesion Evaluation of Radical-, Cation-, and Hybrid-UV Nanoimprint Resins	Makoto Okada	Graduate School of Science, Univ. of Hyogo
p38	Reliability of hot embossed structures	Jin-Hwa Ryu	Pusan National University
p39	Degradable Resist for UV Nanoimprint Lithography	Masamitsu Shirai	Osaka Prefecture University
p40	polymeric micro-zipper	Saskia Möllenbeck	University of Wuppertal
p41	TiO2 patterning by thermal nanoimprint	Norihito Hoto	Osaka Pref. Univ.
p42	Resists with improved release properties for thermal and UV based NIL	Marko Vogler	Micro Resist Technology
p43	Feature Size Reduction by Growing Molecular Layers on Nanoimprinted Photocurable Silsesquioxane Resist	Carlos Pina	University of Michigan
p44	Thiol diffusion during Rigid-Stamp Microcontact Printing	Michael Mühlberger	PROFACTOR GmbH
p45	Sonochemically grown ZnO nanorods and their novel applications based on a printing method	J Park	ETRI

Large Area/Templates

p46	Step and Repeat high resolution large area master fabrication utilizing working stamps from EUV-IL fabricated master templates	Gerald Kreindl	EVGroup
p47	Large area direct fabrication of sub-50 nm features of inorganic materials using nanoimprint lithography	M. S. M. Saifullah	Institute of Materials Research and Engineering
p48	Roll-to-Roll UV Nanoimprinting With Flexible Polymer Stamps	Tapio Mäkelä	VTT
p49	Bilayer Metal Wire-Grid Polarizer Fabricated by Nanoimprint Lithography on a Flexible Plastic Substrate	Fantao Meng	Lund University
p50	Preparation of Plastic Replica of Master Mold and UV-NIL Using Replica Mold	Hiroyuki Wakayama	Osaka Prefecture University
p51	High Vertical Resolution 3D Nanoimprint Templates	Xiaolin Wang	INA, University of Kassel
p52	Multi-usable, adhesively bonded UV-NIL templates	Robert Kirchner	Dresden University of Technology (IHM/MST)
p53	Fabrication of Working Stamps with Mesa Structures for Step and Repeat Nanoimprint Lithography	Arne Schleunitz	Paul Scherrer Institut
p54	Investigating post-EBL thermal/UV treatment of ZEP 520A to make sub-30 nm NIL molds	Linshu Kong	Nanonex Corporation
p55	UV-NIL replicates as molds for Powder Injection Molding	Rainer Schöftner	PROFACTOR GmbH
p56	A Study on the Fabrication of Nano-Pattern Mold Using Anodic Aluminum Oxide Template	Jong Sun Kim	Korea Institute of Industrial Technology (KITECH)
p57	Efficient Methods of Stamp Cleaning Based on Imprint Self-cleaning Effect	Fantao Meng	Lund University
p58	Sub 50nm Working Stamps for Nanoimprint Lithography from CHARPAN Tool exposed Master Templates	Michael Mühlberger	PROFACTOR GmbH

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Large Area/Templates (cont)

p59	NIL stamp replication in Silicon, Nickel, and Polymer	Søren Dahl Petersen	NIL Technology
p60	Si mold fabrication with deep and smooth side wall patterns by deep RIE and Ar plasma Treatment	Jyunji Sakamoto	Osaka Prefecture University
p61	Multi-silicon ridge nanofabrication by repeated edge lithography	Yiping Zhao	MESA+ Research Institute, University of
p62	Fabrication of Scalloped High Aspect Ratio Pillars by UV-NIL using PDMS Template	Tomoki Nishino	Kinki Univ.

Tooling

p63	Nano injection molding: Process and quality control	Christian Rytka	Ems Chemie
p64	Fabrication of Micro Pillar Array by Hot Embossing for Polymeric Reentrant Texture with Superhydrophobicitiy	Seok Kwan Hong	Korea Institute of Industrial Technology
p65	Development of capillary lithography and comparison to nanoimprint lithography	Cecile Gourgon	LTM
p66	A new instrument platform, µ-CP2.1, for the production of functional 2D and 3D structures in the micro- and nanometer range	Steffen Howitz	GeSiM mbH
p67	New instruments for automated microcontact printing. New concept for lab on chip and biochip integration.	Elie Bou Chakra	INL - UMR CNRS 5270
p68	Molecular Transfer Lithography: Water-Dissolvable Templates, Materials Transfer, and Commercialization	Charles D Schaper	Transfer Devices, Inc.
p69	UV Nanoimprint at a low imprint pressure in air and in pentafluoropropane	Hiroshi Hiroshima	National Institute of Advanced Industrial Science
~~p70~~	A Method of concurrent imprinting and selective metal patterning on polymeric substrate withdrawn	Hong Yee Low	Institute of Materials Research and Engineering
p71	Hierarchical pattern definition via capillary force lithography in thermal imprint	Andre Mayer	University of Wuppertal
p72	Realization of Boolean operators of union, intersection and inversion of nanopatterns by nanoimprint lithography	Alessandro Pozzato	TASC CNR-INFM
p73	Measurement of mechanical strength of interfaces in nanopillars	André N Kaufmann	Paul Scherrer Institut
p74	Nanoscale Length Calibration: Artifacts and Testing by Comparison	Jennifer E Decker	National Research Council Canada
p75	SARFUS: Access to the Nanoworld Simply With a Standard Optical Microscope	Benoit Landemaine	NANOLANE

18:00 Buses Depart to Computer History Museum

18:30 **NNT'09 Reception and Banquet**

21:00 Buses Return

Program for Friday, November 13, on next page

Friday, November 13, Room J1/J4, San Jose Convention Center

Modeling/Materials - *Session Chairs: C. Soles (NIST) and Y. Hirai (Osaka)*

8:15	c12	Nanoimprint Simulation Toolkit: Process and Geometry Optimization	David A Mendels	Cognoscens
8:30	c13	Theoretical Analysis of Thermal Actuator Based Nanoimprint Lithography	Saurabh A Chandorkar	Stanford University
8:45	c14	Fast simulation of pattern dependencies in thermal nanoimprint lithography	Hayden K Taylor	MIT
9:00	c15	Use of Shape Memory Polymers in Nanoimprint Lithography	Rainer Schöftner	PROFACTOR GmbH
9:15	c16	In-situ measurements of the complex modulus and demolding damage of nanoimprint photoresists as a function of exposure to UV radiation and stamp geometry	Erik G Herbert	University of Tennessee
9:30	c17	High Si-contents material for Nanoimprint lithography	Satoshi Shimatani	Tokyo Ohka Kogyo Ltd.
9:45	c18	Nanoprinting of inorganic sol-gel films with tunable optical properties	Christophe Peroz	aBeam Technologies

10:00 Break

Large Area/Templates - *Session Chairs: D. Resnick (MII) and E-S Lee (KIMM)*

10:30	Invited 6	Continuous Roll-to-roll and Roll-to-plate Nanoimprinting	Jay Guo	University of Michigan
10:50	c19	Fabrication of 25 nm dot pattern on a 10m-long polymer sheet	Masahiko Ogino	Hitachi, Ltd,
11:05	c20	Seamless Roller Mold Fabricated by Photolithography on Cylindrical Surface	Yung-Chun Lee	National Cheng Kung University
11:20	c21	Industrial Application of Unconventional Lithography to Flat Panel Display: Liquid Crystal Display	Jinook Kim	LG Display R & D Centre
11:35	c22	Large area UV Nano Imprint Lithography Machine Development	Wonho Choi	Kookmin University
11:50	c23	Fluorinated mold treatment regeneration and low-reactivity resists in UV-nanoimprint lithography	Rakhi Sood	CNRS LTM

12:05 Lunch

Process - *Session Chairs: R.F. Pease (Stanford) and M. Komuro (AIST)*

13:30	Invited 7	Defect Inspection for semiconductors and patterned media	Douglas J Resnick	Molecular Imprints Inc.
13:50	c24	From 1D to 2D imprinted structures characterization using optical scatterometry	Issam Gereige	CNRS
14:05	Invited 8	Some Recent Progress in Molecular Scale and 3D Nanofabrication	John Rogers	University of Illinois
14:25	c25	Multi-scale lithography for fabricating periodic micro/nano-droplets and concentric nano-rings by combining block copolymer self-assembly and nano-imprint lithography	Richard A Farrell	UCLA
14:40	c26	Imprint Induced Lateral Ordering in BCP Films for Patterning Applications	Graham L Cross	CRANN
14:55	c27	Pit-patterned Si substrates fabricated by UV nanoimprint lithography for the ordered growth of highly uniform Si/Ge quantum dot arrays	Elisabeth Lausecker	Johannes Kepler University Linz

15:10 Break

Tooling - *Session Chairs: C. Marrian (Spansion) and A. Miyauchi (Hitachi)*

15:40	Invited 9	High-Volume High-Yield Nanoimprint Manufacturing Using Air Cushion Press	Larry Koerchner	Nanonex
16:00	c28	Fiber Imprinting to Develop Fiber-On-Devices	Harutaka Mekaru	Nat. Inst. of AIST
16:15	c29	Patterning nanostructures on curved and non-planar surfaces by Hybrid Nanoimprint-Soft Lithography (HNSL)	Haixiong Ge	Nanjing University
16:30	c30	Direct-Write 3D Nanopatterning Using Probes	Armin W Knoll	IBM Zurich Research Laboratory
16:45	c31	Shape control of polymer reflow structures fabricated by nanoimprint lithography	Helmut Schift	Paul Scherrer Institut
17:00		Closing Remarks		