

17:00-19:00 Welcome Party

**23A-1: Plenary Session (9:00-10:30)**

**Chairs:** S. Matsui (Univ. of Hyogo, Japan)  
Y. Hirai (Osaka Pref. Univ., Japan)

**9:00 Opening**

Conference Chair : S. Matsui (Univ. of Hyogo, Japan) and Program Chair : Y. Hirai (Osaka Pref. Univ., Japan)  
F.R. Pease (Univ. of Stanford, USA)

**23A-1-1 Japan's Manufacturing Industry (Plenary)**

9:20 K. Sawaki, METI, Japan

**23A-1-2 Status and Future of Nanoimprint (Plenary)**

9:50 S.Y. Chou, Princeton Univ., USA

**Room P (2F)**

10:30-10:40 Coffee Break

**Room A (2F)****23A-2: Application I (10:40-12:30)**

**Chairs:** E.-S. Lee (KIMM, Korea)  
R. Maeda (AIST, Japan)

**23A-2-1 Jet and Flash Imprint Lithography for the High Volume Manufacturing of Semiconductor Devices (Invited)**

10:40

D. Resnick, Canon Nanotechnologies, USA

**23A-2-2 A Direct Imprinting for Fine Metal Oxide Patterns and Devices (Invited)**

11:05

T. Shimoda 1,2, T. Kaneda 1, D. Hirose 2, T. Miyasako 1, P.T. Tue 1,2, Y. Murakami 2, S. Kohara 3, J. Li 1,2, T. Mitani 1,2, E. Tokumitsu 1,2 and S. Nobukawa 2, 1 JST-ERATO, 2 JAIST and 3 JASRI, Japan

**23A-2-3 Parallel Fabrication of Graphene-Based Devices by UV-NIL**

11:30

L. Häusler 1, B. Einwögerer 1, W. Hackl 1, T. Fromherz 2, M. Losurdo 3, G. Bruno 3, N. Rupesinghe 4, S. Schuler 5, M. Furchi 5, T. Müller 5, B. Kley 6, W. Rockstroh 6, M. Mühlberger 1 and I. Bergmair 1  
1 Profactor, 2 Univ. of Linz, Austria, 3 Inst. of Inorganic Methodologies and of Plasmas-CNR, Italy, 4 Aixtron, UK, 5 TU Vienna Univ. of Technol., Austria and 6 Friedrich-Schiller-Univ., Germany

**23A-2-4 Highly Transparent and Embedded Ag Electrodes Structures for OPV Applications Fabricated by Reverse UV Light Assisted Imprint Transfer Lithography**

11:50

N. Kehagias 1, I. Burgués-Ceballos 2,3, M. Campoy-Quiles 3, P.D. Lacharmoise 2 and C.S.M. Torres 4, 1 Catalan Inst. of Nanoscience and Nanotechnology, 2 Cetemmsa Technological Ctr., 3 ICMAB-CSIC and 4 ICREA, Spain

**23A-2-5 Large Area Fabrication of Plasmonic Color Filters Using UV-SCIL**

12:10

M. Rumler 1,3, R. Fader 1,3, A. Haas 1, M. Rommel 1, A.J. Bauer 1,3 and L. Frey 1,2,3, 1 IISB, 2 Univ. Erlangen-Nuremberg and 3 SAOT, Germany

12:30-13:40 LUNCH

**23A-3: Roll to Roll (13:40-15:50)**

**Chairs:** A. Miyauchi (Hitachi, Japan)  
F.-Y. Chang (Natl. Taiwan Univ. of Sci. and Technol., Taiwan)

**23A-3-1 Soft Photo-Mask Lithography and Its Industrial Application on Patterned Sapphire Substrate (PSS) of Light-Emitting Diode (LED) (Invited)**

13:40

Y.-C. Lee, Natl. Cheng Kung Univ., Taiwan

**23A-3-2 The Prospects of Design for Roll to Roll Lithography: Layout Refinement Utilizing Process Simulation (Invited)**

14:05

S. Kobayashi, M. Shimizu, S. Tanaka, Y. Furutono, M. Hatano, K. Matsuki, R. Inanami and S. Mimotogi, Toshiba, Japan

**23A-3-3 Large Area Residual Layer Free Roll-to-Roll-UV-Imprint-Lithography**

14:30

D. Nees, M. Beleggratis, S. Ruttloff, U. Palfinger and B. Stadlober, Inst. for Surface Technologies and Photonics, Austria

**23A-3-4 Fabrication of Anti-Reflection Film with Sub-Wavelength Structures Based on Roll-to-Roll Nanoimprinting**

14:50

C.-H. Chuang, D.-M. Lu, P.-H. Wang, W.-Y. Lee, Southern Taiwan Univ. of Sci. and Technol., Taiwan

**23A-3-5 Fabrication of Nano- and Microstructures on Polymer Foils by Extrusion Coating**

15:10

M. Matschuk 1, G. Kofod 1, S. Westad 3, P. Johansen 3, H. Pranov 1 and R. Taboryski 2, 1 Inmold Biosystems, 2 DTU Nanotech and 3 Danapak Flexibles, Denmark

**23A-3-6**      **Thermal Roller Nanoimprinting - Multilayered Structures, Laser-Assisted Replication -**  
15:30      *K. Nagato 1,2, K. Takahashi 1 and M. Nakao 1, 1 Univ. of Tokyo and 2 JST-PRESTO, Japan*

**23A-3-7**      **Extraordinary Optical Transmission of Metallic Hole Arrays for Color Display Applications by Nanoimprint**  
15:50      *B.-R. Lu, C. Xu and Y. Chen, Fudan Univ., China*

Room P (2F)

**Poster Session (16:20-18:20)**

**Process**

**23P-4-1**      **Investigation of The Minimum UV-Exposure Period for High-Throughput UV Nanoimprinting**  
*Y. Ishito and M. Nakagawa, Tohoku Univ., Japan*

**23P-4-2**      **Study on Deterioration Mechanism of Antisticking Layer in Repeated UV Nanoimprint**  
*S. Iyoshi 1, M. Okada 1, Y. Haruyama 1, M. Nakagawa 2, H. Hiroshima 3 and S. Matsui 1, 1 Univ. of Hyogo, 2 Tohoku Univ. and 3 AIST, Japan*

**23P-4-3**      **Computational Study on Molecular Behavior in The Resist During De-Molding Process in Nanoimprint Lithography**  
*N. Iwata, R. Takai, M. Yasuda, H. Kawata and Y. Hirai, Osaka Pref. Univ., Japan*

**23P-4-4**      **Consideration of Resin Peeling In UV Nanoimprint Without Antisticking Layer**  
*T. Oyama 1, T. Yamashita 2, M. Okada 1, S. Iyoshi 1, Y. Haruyama 1 and S. Matsui 1, 1 Univ. of Hyogo and 2 Daikin Industries, Japan*

**23P-4-5**      **Computational Study of Impact of Resist Shrinkage on Resist Separation and De-Molding Processes**  
*T. Tochino, K. Uemura, M. Yasuda, H. Kawata and Y. Hirai, Osaka Pref. Univ., Japan*

**23P-4-6**      **Impact of Resist Shrinkage on Squeezed Residual Layer in Nanoimprint Lithography**  
*T. Tochino, M. Yasuda, H. Kawata and Y. Hirai, Osaka Pref. Univ., Japan*

**23P-4-7**      **Impact of Tribological Characteristics on De-Molding Process**  
*K. Uemura 1, T. Tochino 1, M. Michalowski 2, T. Shiotsu 1, M. Yasuda 1, H. Kawata 1, Z. Rymuza 2 and Y. Hirai 1, 1 Osaka Pref. Univ., Japan and 2 Warsaw Univ. of Technology, Poland*

**23P-4-8**      **The Influence of Surface Energies on The Working Stamp Fabrication for UV-Based Nanoimprint Lithography**  
*M. Haslinger, L. Häusler, K. Bretterbauer, I. Bergmair and M. Mühlberger, Profactor, Austria*

**23P-4-9**      **Photoelectron Spectroscopy Study of The Fluorinated Antisticking Layers for Nanoimprint Lithography**  
*Y. Haruyama 1, M. Okada 1, Y. Nakai 1, T. Ishida 2 and S. Matsui 1, 1 Univ. of Hyogo and 2 AIST, Japan*

**23P-4-10**      **Pressure Dependence of Fine Structure formation on Glass Surface by Electrical Nanoimprint**  
*T. Misawa 1, N. Ikutame 1, T. Abe 1, H. Kaiju 1, J. Nishii 1, D. Sakai 2 and K. Harada 2, 1 Hokkaido Univ. and 2 Kitami Inst. of Technol., Japan*

**23P-4-11**      **Selective SiO<sub>2</sub> Deposition Using Corona Discharge CVD on Electrically Imprinted Soda-Lime Glass**  
*D. Sakai 1, Y. Hara 1, K. Harada 1, H. Ikeda 2, T. Misawa 3, N. Ikutame 3, K. Kawaguchi 3, H. Kaiju 3 and J. Nishii 3, 1 Kitami Inst. of Technol., 2 Kyushu Univ. and 3 Hokkaido Univ., Japan*

**23P-4-12**      **Uniform Residual Layer Thickness in UV-NIL Achieved by Screen Printing with High-Viscosity Resins**  
*T. Uehara 1, K. Nagase 2, A. Tanabe 1, H. Ikeda 2 and M. Nakagawa 1, 1 Tohoku Univ. and 2 MINO, Japan*

**23P-4-13**      **Fabrication of Periodic Metal Diffraction Grating with Micro-Scale Mold by Direct Imprint**  
*W.-C. Kao 1, F.-Y. Chang 1 and C.-C. Wu 2, 1 Natl. Taiwan Univ. of Sci. and Technol. and 2 Tamkang Univ., Taiwan*

**23P-4-14**      **Reversal Room-Temperature Nanoimprinting for 3D HSQ Structure**  
*N. Sugano, M. Okada, Y. Haruyama and S. Matsui, Univ. of Hyogo, Japan*

**23P-4-15**      **Amorphous LaRuO Nano-Patterning Using Rheology Printing Method**  
*K. Nagahara, J. Li, D. Hirose, E. Tokumitsu and T. Shimoda, JAIST, Japan*

**23P-4-16**      **A Pattern Formation Method by Nanoelectrode Lithography**  
*H. Uchida 1, A. Yokoo 2, M. Fukuda 1 and Y. Iwatani 1, 1 Hirosaki Univ. and 2 NTT, Japan*

**23P-4-17**      **Replication of Atomically Smooth Surface Shape onto Electroplated Au Patterns by Lift-Off Process**  
*Y. Kurashima, A. Maeda and H. Takagi, AIST, Japan*

**23P-4-18**      **Nanopatterned Surfaces for Studying Cell Interactions**  
*N. Gopalakrishnan, . B. Strøm and Ø. Halaas, Norwegian Univ. of Sci. and Technol., Norway*

**23P-4-19**      **Preparation and Characterization of Superhydrophobic Micropillars Assembly with Bumps on Their Surface**  
*Y. Shimazaki and A. Miyauchi, Hitachi, Japan*

**23P-4-20**      **Adaptive Alignment for Nanoimprinting and for Other Applications**  
*E.E. Moon 1 and R.F. Pease 2, 1 MIT and 2 Stanford Univ., USA*

- 23P-4-21 Large Area Fabrication of Hybrid Polymer Waveguides for Planar Bragg Grating Sensors Using UV-Enhanced Substrate Conformal Imprint Lithography (UV-SCIL)**  
M. Foerthner 1, R. Fader 2, M. Rumler 2, M. Rommel 2, L. Frey 1,2 M. Girschikofsky 3, S. Belle 3, R. Hellmann 3 and J. Klein 4, 1 Univ. Erlangen-Nuremberg, 2 IISB, 3 Univ. of Applied Sci. Aschaffenburg and 4 micro resist technol., Germany
- 23P-4-22 Fabrication of 2D and 3D Shaped Micro- and Nanoparticles via Substrate Conformal Imprint Lithography**  
S. Reuter, A. Istock, M.A. Smolarczyk, U.-M. Ha, O. Schneider, L. Gomer and H.H. Hillmer, Univ. of Kassel, Germany
- 23P-4-23 Large-Area Fabrication of Orthogonally-Arranged Nano-Bowtie Arrays Using A Grating Mold**  
L. Feng, S. Shi, L. Liu, F. Wu and N. Lu, Jilin Univ., China
- 23P-4-24 Fabrication of Metal Nanodome Structure Using UV Nano-Imprinting Process for Enhanced Fluorescence Substrate**  
H. Jang and S.-M. Kim, Chung-Ang Univ., Korea
- 23P-4-25 Investigation of Continuous Solution Dispensing Technology for Printed Charge Storage Capacitors**  
Y. Ge, M. Plötner, L. Teng, W.-J. Fischer, Technische Univ. Dresden, Germany
- 23P-4-26 Structure Placement Accuracy of Wafer Level Stamps for Substrate Conformal Imprint Lithography**  
R. Fader 1, M. Förthner 1, M. Rommel 1, A.J. Bauer 1, L. Frey 1, M.A. Verschuuren 2, J. Butschke 3, M. Irmscher 3, E. Storage 4, R. Ji 4 and U. Schömbbs 4, 1 Fraunhofer Inst. for Integrated Systems and Device Technol., Germany, 2 Philips Corporate Technologies, The Netherlands, 3 IMS Chips and 4 SUSS MicroTec Lithography, Germany
- 23P-4-27 Selective Placement of DNA Origami Nanotubes on Nanoimprinted Surfaces**  
L. Teng 1, A. Heerwig 1, M. Lakotos 1, S. Ramakrishnan 1, W.-J. Fischer 1 and M. Mertig 1,2, TU Dresden and 2 Kurt-Schwabe-Inst. Fur Mess und Sensortech., Germany
- 23P-4-28 Utilization of Residual Layer In Reflow Process for Sidewall Inclination**  
H. Mekar, AIST, Japan
- Template / Material**
- 23P-4-29 Evaluation of The New Vistec SB4050 VSB E-Beam Writer for Template Making**  
M. Irmscher, J. Butschke, S. Martens and H. Sailer, Inst. for Microelectronics Stuttgart, Germany
- 23P-4-30 Fabrication Process for Quartz Mold with High-Contrast Embedded Alignment Marks**  
K. Suzuki, S.-W. Youn and H. Hiroshima, AIST, Japan
- 23P-4-31 Nanoelectrode Lithography Using A Flexible Conductive Mold**  
Y. Li 1,2, H. Toshiyoshi 1 and H. Fujita 1, 1 Univ. of Tokyo and 2 Toshiba, Japan
- 23P-4-32 From Step and Repeat to Wafer Level Replication**  
M. Altana, S. Westenhöfer, M. Cesana and M. Rossi, Heptagon Advanced Micro Optics, Switzerland
- 23P-4-33 Metal Nano-Imprinting Using Vitreous Carbon Mold for Enhanced Boiling Heat Transfer**  
M.A. Badshah, J. Ju, Y.-K. Kim, H.-Y. Jang, H. Jang and S.-M. Kim, Chung-Ang Univ., Korea
- 23P-4-34 Development of Large-Area Nanoimprinting Molds by Step & Repeat Method With Using Film Molds**  
M. Yamanaka, Y. Miyazawa, T. Takahashi, Y. Mizukami and T. Mizawa, Soken Chemical & Eng., Japan
- 23P-4-35 Full Area Nanoimprinting onto Large Wafer Using Film Mold: Application for Nano-Patterned Devices**  
R. Kojima, Y. Mizukami and T. Mizawa, Soken Chemical & Eng., Japan
- 23P-4-36 Influencing Factors for The Fabrication of Square Working Stamps for UV-Based Nanoimprint Lithography**  
J. Danzberger, M. Haslinger, T. Fischinger, L. Häusler, M. Lindner, B. Einwögerer, K. Bretterbauer, T. Faury, W. Hackl, O. Lorret, I. Bergmair and M. Mühlberger, Profactor, Austria
- 23P-4-37 Bio-Inspired Inlays for Injection Molding Fabricated by UV-NIL to Influence The Friction Behaviour of Ceramic Surfaces**  
J. Danzberger 1, M. Rohn 1, A. Rank 1, B. Einwögerer 1, I. Bergmair 1, M. Mühlberger 1 E. Sonntag 2, R. Kirchner 3, H. Schiff 3, C. Forsich 4, D. Heim 4 and E. Trappl 5, 1 Profactor, 2 BROELL, Austria, 3 Paul Scherrer Inst. Switzerland, 4 Upper Austrian Univ. of Applied Sci. and 5 Kolibri Werkzeugbau GmbH, Austria
- 23P-4-38 New Dimensions for NIL: 2.5D Imprinting**  
M.A. Verschuuren and R.v. Brakel, Philips, The Netherlands
- 23P-4-39 Nanoimprint Molds of Carbon-Coated Anodic Aluminum Oxide Films with Sub-20 nm Hole Structures**  
A. Nakaya 1, Y. Hoshikawa 1, H. Kasa 2, J. Nishii 2, T. Kyotani 1 and M. Nakagawa 1, 1 Tohoku Univ. and 2 Hokkaido Univ., Japan
- 23P-4-40 Fabrication of Sub 50 nm Guide Line Wall for Graphoepitaxy of Block Copolymer Using Nanoimprint Lithography with TiO<sub>2</sub> Sol and Thermal Annealing Process**  
J.-H. Huh, J.-Y. Cho, P.-H. Jung, S. Hyun, B.-N. Go, C. Kim and H. Lee, Korea Univ., Korea

- 23P-4-41** **Mold Duplication by Hybrid Polymer Material**  
*K. Uemura 1, K. Simomukai 1, H. Noma 1, S. Wang 2, M. Yasuda 1, H. Kawata 1, H.-C. Scheer 2 and Y. Hirai 1, 1 Osaka Pref. Univ., Japan and 2 Univ. of Wuppertal, Germany*
- 23P-4-42** **Fabrication of Flexible SU-8 Moulds by A New Direct 3D Patterning Approach for Nanoimprint Lithography Applications**  
*N. Worapattrakul, V. Viereck and H.H. Hillmer, Univ. of Kassel, Germany*
- 23P-4-43** **towards Nanoimprint Lithography on Free-form Surfaces: A Global/Local Modelling Approach for Predicting The Deformation of The Flexible Stamp**  
*M.R. Sonne 1, K. Smistrup 2 and J.H. Hattel 1, 1 Technical Univ. of Denmark and 2 NIL Technology ApS, Denmark*
- 23P-4-44** **100 nm Pattern Fabrication by Using De-Molding-Free Roller Type Nanoimprint and Water-Dissolvable Soft Mold**  
*Y. Zhong and M.M.F. Yuen, Hong Kong Univ. of Sci. and Technol., Hong Kong*
- 23P-4-45** **Fabrication of Si Molds with High Aspect Pattern for Various Pattern Sizes**  
*H. Kawata, M. Mamuro, K. Shimomukai, M. Yasuda and Y. Hirai, Osaka Pref. Univ., Japan*
- 23P-4-46** **Fabrication of Nano-Patterned Injection Moulding Steel tool Inserts by Nanoimprint Lithography**  
*M. Zalkovskij 1, L.H. Thamdrup 1, K. Smistrup 1, T. Andén 1, A.C. Johansson 1, N.J. Mikkelsen 2, M.H. Madsen 3, T.T. Kristiansen 4, M. Diemer 4, M. Døssing 5, P.T. Tang 6, D. Minzari 6, A. Kristensen 7, R. Taboryski 7, B. Bilenberg 1 and T. Nielsen 1, 1 NILT, 2 CemeCon Scandinavia, 3 DFM, 4 LEGO System, 5 TOOL partners, 6 IPU and 7 DTU Nanotech, Denmark*
- 23P-4-47** **Fluorinated Polymer (FROMP™) Made by ROMP for Use In Nanoimprint Technology**  
*T. Oda and T. Sunaga, Mitsui Chemicals, Japan*
- 23P-4-48** **Development of Silicon-Containing Additives for UV Nanoimprint Lithography to Improve Durability of Resist Material to O<sub>2</sub> Reactive Ion Etching**  
*S. Ito 1, H. Sato 2, Y. Tasaki 2, Y. Honda 2, N. Nemoto 2 and M. Nakagawa 1, 1 Tohoku Univ. and 2 Nihon Univ., Japan*
- 23P-4-49** **Quantitative Evaluation and Defect Elimination in Template Releasing Process by Use of Fluorinated Segregation Agents Into Resist Polymer**  
*N. Nakamura 1, T. Yamashita 2, T. Kitagawa 1, H. Kawata 1, M. Shirai 1 and Y. Hirai 1, 1 Osaka Pref. Univ. and 2 Daikin, Japan*
- 23P-4-50** **UV-Curable Hybrid Polymers with High Refractive Index and Improved PDMS-Compatibility for Advanced Micro- and Nano-Optics**  
*J.J. Klein, M.-M. Russew, M. Vogler, A. Schleunitz, G. Grützner, micro resist technol., Germany*
- 23P-4-51** **Effect of UV Curing Conditions on Adhesion Characteristics between Resist and Mold Surface**  
*M. Shirai, K. Uemura, H. Kawata and Y. Hirai, Osaka Pref. Univ., Japan*
- 23P-4-52** **Novel Fluorinated Compounds That Improve Durability of Antisticking Layer for Quartz Mold**  
*T. Yamashita 1, S. Iyoshi 2, M. Okada 2 and S. Matsui 2, 1 Daikin Industries and 2 Univ. of Hyogo, Japan*
- 23P-4-53** **Optical Polymers with Tunable Refractive Index for Nanoimprint Technologies**  
*R. Fader 1, J. Landwehr 1, M. Rumler 1, M. Rommel 1, A.J. Bauer 1, L. Frey 1, B. Simon 2, B. Fodor 2, P. Petrik 2, A. Schiener 3, B. Winter 3, E. Spiecker 3, 1 IISB, Germany, 2 Res. Inst. for Technical Physics and Materials Sci., Hungary and 3 Univ. of Erlangen-Nuremberg, Germany*
- Roll to Roll**
- 23P-4-54** **Systematic Study of Replication Fidelity of Nanostructures in Polymer Down to 40nm by Roll-to-Roll Extrusion Coating**  
*S. Murthy 1, H. Pranov 1, M. Matschuk 1, R. Taboryski 2 and H.C. Pedersen 1, 1 InMold Biosystems and 2 Technical Univ. of Denmark, Denmark*
- 23P-4-55** **Fabrication of Nano-Patterned Roll Mold Using Pattern Transfer Process**  
*H.J. Kang, C.-S. Kim and M.Y. Jeonga, Pusan Natl., Univ., Korea*
- 23P-4-56** **High Resolution and Seamless R2R Imprinting Using Large Area Seamless Roller Mold**  
*K. Sasaki, S. Matsubara, T. Tanaka and K. Komatsu, Asahi Kasei, Japan*
- 23P-4-57** **Large Area Seamless Roller Mold Using Fast EB Lithography for High-Resolution R2R Process**  
*N. Ito 1, M. Abe 1, T. Kitada 1, T. Tanaka 1, M. Ataka 2, T. Kishiro 2 and S. Matsui 3, 1 Asahi Kasei, 2 Holon and 3 Univ. of Hyogo, Japan*
- 23P-4-58** **Applying UV Roll-to-Roll Processes to Produce The Concentrated Films of A Solar Energy System**  
*C.-H. Wu and W.-T. Chen, Natl. Kaohsiung Univ. of Applied Sci., Taiwan*
- 23P-4-59** **Micro and Nanoscale Roll-to-Roll Hot Embossing for The Fabrication of Plastic Devices**  
*G. Kreindl 1, M. Chouiki 1, M. Thorsten 1, J. Dumond 2 and O.K. Soo 2, 1 EV Group, Austria and Inst. of Materials Res. & Eng., Singapore*

## Application

- 23P-4-60 Large-Area UV-Based Nanoimprint Lithography to Investigate The Silicon-Germanium Island Growth on Pit-Patterned Silicon Substrates**  
*J. Danzberger 1, L. Häusler 1, I. Bergmair 1, M. Mühlberger 1, E. Lausecker 2, M. Glaser 2, F. Schäffler 2 and T. Fromherz 2, 1 Profactor and 2 Univ. of Linz, Austria*
- 23P-4-61 UV-Imprinting and Inkjet Printing - A Technology Synergy for Microlens Manufacturing**  
*L. Jacot-Descombes 1, V.J. Cadarso 2, A. Schleunitz 1, S. Grützner 1, J. Brugger 3, H. Schiff 2 and G. Grützner 1, 1 micro resist technol, Germany, 2 Paul Scherrer Inst. and 3 EPFL, Switzerland*
- 23P-4-62 Enhancing Light Extraction Efficiency of OLED with Photonic Quasi-Crystal Structures by UV-Nanoimprint Lithography Process**  
*K.-Y. Cheng 1, C.-W. Hsieh 1, C.-K. Huang 2, M.-Y. Chang 2 and T.-H. Chou 1, 1 ITRI and 2 Natl. Sun Yat-Sen Univ., Taiwan*
- 23P-4-63 Development of Biodegradable Polylactide Graft Stent Manufacturing by Circular Imprint**  
*P.-T. Teng and F.-Y. Chang, Natl. Taiwan Univ. of Sci. and Technol., Taiwan*
- 23P-4-64 Withdrawn ~~Step and Repeat Nanoimprinting on Pre-Spin Coated Film: From Sub-15 Nm Metal Patterning to The Fabrication of A on-Chip Spectrometer~~**  
*~~G. Calafiore 1, S. Dhuey 2, S. Sassolini 2, M. Vogler 3, C. Shawawreh 2, M. Messerschmidt 3, D. Olynick 2, S. Cabrini 2 and C. Perez 1, 1 aBeam Technologies, 2 The Molecular Foundry, USA and 3 micro-resist technol., Germany~~*
- 23P-4-65 Fabrication of Three-Dimensional Epitaxial Spinel Ferrite Nanowall Wire Structures by 3D-Nanotemplate PID Technique**  
*A.N. Hattori, Y. Fujiwara, K. Fujiwara and H. Tanaka, Osaka Univ., Japan*
- 23P-4-66 Self-Assembly of Single-Crystalline TiO<sub>2</sub>-Nanorods to Hierarchical Microspheres as High Performance Photoanode Materials in Dye-Sensitized Solar Cells**  
*Z. He, J. Liu and T.T.Y. Tan, Nanyang Technological Univ., Singapore*
- 23P-4-67 Withdrawn ~~Nanopyramids Fabricated Using UV-Curing Nanoimprint Lithography and Their Applications on Pedot:Pss/Si Hybrid Solar Cells~~**  
*~~P.-J. Ku, J.-Y. Chen and K.W. Sun, National Chiao Tung Univ., Taiwan~~*
- 23P-4-68 Nanoscale Patterning of Proteins for Understanding Molecular Interactions of Membrane Proteins In Living T-Cells**  
*M. Lindner 1, J. Kastner 1, O. Lorret 1, E. Sevcsik 2, M. Fölser 2, G. Schütz 2, I. Bergmair 1, 1 Profactor and 2 TU Vienna, Austria*
- 23P-4-69 Impact of Morphology on T-NIL with Semi-Crystalline P3Ht**  
*S. Wang, K. Dhima, C. Steinberg, M. Papenheim and H.-C. Scheer, Univ. of Wuppertal, Germany*
- 23P-4-70 Simple and Fast Guiding of Ps-B-Pmma Diblock Copolymers with A Flexible Stamp**  
*C. Steinberg 1, M. Papenheim 1, K. Dhima 1, S. Wang 1, J. Zajadacz 2, K. Zimmer 2 and H.-C. Scheer 1, 1 Univ. of Wuppertal and 2 Leibniz-Institut für Oberflächenmodifizierung, Germany*
- 23P-4-71 3D Silicon Nanostructure for Highly Efficient Organic/Inorganic Hybrid Solar Cell**  
*P.-H. Jung, H.-J. Choi, Y.-D. Kim, C. Kim, J.-H. Huh, S. Hyun, B.-N. Go and H. Lee, Korea Univ., Korea*
- 23P-4-72 Improvement in Conversion Efficiency of Amorphous Si Solar Cell Using ZnO-Nanoparticles-Based Structures**  
*B.-N. Go, C. Kim, J.-h. Huh, S. Hyun, P.-h. Jung and H. Lee, Korea Univ., Korea*
- 23P-4-73 High Performance Anode With Micro-Nano Structure for Lithium Ion Batteries**  
*S. Hyun, J.-H. Shin, G. Kim, J.-H. Huh, P.-H. Jung, B.-N. Go, Y.-H. Sung, C.H. Kim and H. Lee, Korea Univ., Korea*
- 23P-4-74 Electrospinning of Gelatin Nanofibers for Human Pluripotent Stem Cell Applications**  
*L. Liu 1, M. Yoshioka 1, K. Kamei 1 and Y. Chen 1,2, 1 Kyoto Univ., Japan and 2 Ecole Normale Supérieure, France*
- 23P-4-75 Chemical Guide Pattern Fabricated by Thermal Nanoimprinting for Alignment of PS-b-PMMA Microdomains**  
*H. Wakaba, M. Okada, S. Iyoshi, Y. Haruyama and S. Matsui, Univ. of Hyogo, Japan*
- 23P-4-76 Demanding High Aspect Ratio Nanostructures Fabricated Applying A Novel Inkjet Dispensable NIL Resist**  
*M.W. Thesen 1, M. Rumler 2, M. Rommel 2, M. Messerschmidt 1, M. Vogler 1 and G. Grützner 1, 1 micro resist technol. and 2 IISB, Germany*
- 23P-4-77 Evaluation of Molecular Orientation in Liquid Crystalline Polymer Structure Fabricated by Nanoimprinting**  
*M. Okada 1, R. Hosoda 1, M. Kondo 1, Y. Haruyama 1, T. Sasaki 2, H. Ono 2, N. Kawatsuki 1 and S. Matsui 1, 1 Univ. of Hyogo and 2 Nagaoka Univ. of Technol., Japan*
- 23P-4-78 Hydrophilicity Enhancement in Plastic-Pipette by Nano-Textured Surface**  
*K. Kurihara, N. Takada, H. Takagi and R. Maeda, AIST, Japan*

- 23P-4-79**      **Investigations on The Growth Mechanism and Photovoltaic Application of Porous Anodic Alumina with The Help of Nanoimprinting**  
*D. Li, Chinese Academy of Sci., China*
- 23P-4-81**      **Monolayer-Assisted Nanoimprint Lithography to Fabricate Visible Frequency Metamaterials**  
*S. Kubo, T. Uehara and M. Nakagawa, Tohoku Univ., Japan*
- 23P-4-82**      **A Study on The Residual Layer Control for Imprinted PLC Devices**  
*J. H. Kim, S.U. Cho, T.H. Lee and M.Y. Jeong, Pusan Natl. Univ., Korea*
- 23P-4-83**      **GaN/InGaN-Based Light-Emitting Diode with Patterned Top Metal Electrode and Broad Spectrum Emission**  
*J. Kholopova 1, E. Polushkin 1, S. Larkin 1, S. Shapoval 1, V. Zemlyakov 2, V. Egorkin 2, N. Antonova 3, A. Tsatsul'nikov 4 and I. Khmyrova 5, 1 IMT RAS, 2 NRUET, 3 NRNU MEPhI, 4 A.F. Ioffe Physico-Technical Inst. RAS, Russia and 5 Univ. of Aizu, Japan*
- 23P-4-84**      **Comparison with The Imprinting Transfer and The Material Viscoelasticity**  
*K. Monden and Y. Akiyama, Denki Kagaku Kogyo, Japan*
- 23P-4-85**      **The Refractive Index Sensor Based on Plasmonic Absorber Using Nanoimprint Lithography**  
*J.-Y. Jung, J.-H. Jeong and E.S. Lee, KIMM, Korea*
- 23P-4-86**      **Fabrication of Ag Pyramidal Arrays As Highly-Reproducible Sens Substrates**  
*Y. Wang, W. Wang, L. Liu, L. Feng and N. Lu, Jilin Univ., China*
- 23P-4-87**      **Characterization of Binary Random Phase Array Fabricated by Nanoimprint Lithography**  
*Y. Nakamura, Y. Inada, A. Hashiya and T. Hirasawa, Panasonic, Japan*
- 23P-4-88**      **Multicolor Pattern Generation of Noble Metal Nanodisk Arrays**  
*S.-C. Yang, TU Dresden, Germany*
- 23P-4-89**      **Fabrication of Solution-Processed Source/Drain Electrodes by Thermal Nanoimprint Assisted Ink-Jet Printing**  
*A. Kumar, M. Plötner, L. Teng, S.C. Yang and W.-J. Fischer, TU Dresden, Germany*
- 18:30-20:30      **Banquet** **Room A (2F)**

**24A-5: Process Modeling (9:00-10:30)**

**Chairs:** Y. Hirai (Osaka Pref. Univ., Japan)  
H. Schiff (Paul Scherrer Inst., Switzerland)

**24A-5-1 Size Effects in Nanoimprinted Structures and Manufacturing Flows (Invited)**

9:00 G.L.W. Cross, Trinity College Dublin, Ireland

**24A-5-2 Material Characterization Issue for NIL Simulation (Invited)**

9:25 S. Landis 1, E. Rognin 1,2, L. Davoust 2 and H. Teysseire 1, 1 CEA LETI and 2 CNRS SIMAP/EPM, France

**24A-5-3 Effect of Residual Stress on Replication Fidelity With Nanoimprint**

9:50 M. Papenheim 1, K. Dhima 1, S. Wang 1, C. Steinberg 1, H.-C. Scheer 1, J. Saupe 2, M. Schönfeld 2 and J. Grimm 2, 1 Univ. of Wuppertal and 2 Univ. of Zwickau, Germany

**24A-5-4 Nanosculpting with Imprint Lithography**

10:10 M.J. Chopra, A. Cherala, S.V. Sreenivasan and R.T. Bonnecaze, Univ. of Texas at Austin, USA

Room P (2F)

10:30-10:45 Coffee Break

Room A (2F)

**24A-6: Template / Material (10:45-11:50)**

**Chairs:** M. Nakagawa (Tohoku Univ., Japan)  
D. Resnick (CANON Nanotechnologies, USA)

**24A-6-1 Nanoimprint Fabrication and Application of Subnano-Scale Surface-Patterned Glassy Substrates (Invited)**

10:45 G. Tan 1, Y. Nozawa 1, T. Funabasama 1, S. Kaneko 2,1, A. Matsuda 1 and M. Yoshimoto 1, 1 Tokyo Inst. of Technol. and 2 Kanagawa Industries Technol. Ctr., Japan

**24A-6-2 Fabrication of Glass Microlens Array by Glass Imprinting Using Vitreous Carbon Stamp**

11:10 J. Ju and S.-m. Kim, Chung-Ang Univ., Korea

**24A-6-3 Development of Multistep Micro-Nano Mixed Structure Using Conventional Nanoimprinting Molds**

11:30 Y. Suto, Y. Miyazawa, Y. Mizukami and T. Mizawa, Soken Chemical & Eng., Japan

11:50-13:00 LUNCH

**24A-7: Process II (13:00-14:45, October 24, 2014)**

**Chairs:** A. Yokoo (NTT, Japan)  
H.-C. Scheer (Univ. of Wuppertal, Germany)

**24A-7-1 Ultrafast Nanoimprint Lithography on Full Wafers (Invited)**

13:00 M. Tormen 1,2, E. Sovnigo 1,2, A. Pozzato 1,2, M. Pianigiania 2,3, M. Tormen 1,4, 1 ThunderNIL, 2 IOM-CNR, 3 Univ. of Trieste, Italy and 4 Ctr. Suisse d'Electronique et de Microtechnique SA, Switzerland

**24A-7-2 Controlled Nanoimprint Transfer for Tunable Plasmonic Metal Structure**

13:25 Y.-H. Jung, S.-K. Sung, J.-H. Jeong, E.-S. Lee and J.-H. Choi, Univ. of Sci. and Technol. & KIMM, Korea

**24A-7-3 Additive Nano Manufacturing Utilized by Reverse Nanoimprint Lithography Processes**

13:45 A. Fernández 1, J. Medina 1, C. Benkel 3, M. Guttman 3, B. Bilenberg 4, L.H. Thamdrup 4, T. Nielsen 4, C. Sotomayor Torres 1,2 and N. Kehagias 1, 1 ICN, 2 ICREA, Spain, 3 KIT and 4 NILT, Denmark

**24A-7-4 Implementation of A Novel Self-Aligned NanoShaping (SANS) Technology to Fabricate 3D Nanoparticles**

14:05 M.A. Smolarczyk, S. Reuter, L. Jablonka and H. Hillmer, Univ. of Kassel, Germany

**24A-7-5 Fabrication of Bio-Inspired Replication Masters and Mobility Based Full 3D Reflow Simulation**

14:25 R. Kirchner 1, H. Schiff 1 E.Sonntag 2, M. Rohn 3, I. Bergmair 3 and M. Munlberger 3, 1 Paul Scherrer Inst., Switzerland, 2 BROELL and 3 Profactor, Austria

Room P (2F)

14:45-15:00 Coffee Break

Room A (2F)

**24A-8: Application II (15:00-16:55)**

**Chairs:** H. Hiroshima (AIST, Japan)  
S. Landis (CEA LETI, France)

**24A-8-1 Enhanced Performance of Organic Devices by Optical-functional Pattern (Invited)**

15:00 H. Lee, Korea Univ., Korea

**24A-8-2 UV-NIL Applied Fabrication of High Quality 2-Inch GaN Template Using Nanometer-Size SiO<sub>2</sub> Lattice Mask Structure**

15:25 A. Okada 1, J. Mizuno 1, H. Shinohara 2, H. Goto 2, T. Matsueda 3, H. Sunakawa 3, H. Goto 3, T. Nakagawa 3, A.A. Yamaguchi 4, S. Shoji 1 and A. Usui 3, 1 Waseda Univ., 2 Toshiba Machine, 3 Furukawa and 4 Kanazawa Inst. of Technol., Japan

- 24A-8-3**  
15:45  
**Fabrication of Nano Wire Grid Polarizer Film by Magnetic Soft Mold**  
*S.U. Cho 1, S. Chang 2, D.-C. Choi 2, C.-S. Kim 1, M.Y. Jeong 1, 1 Pusan Natl. Univ. and 2 KIMM, Korea*
- 24A-8-4**  
16:05  
**UV Nano Imprint Process for Making The Wire Grid Polarizing Film (WGF™)**  
*T. Namatame, Y. Tanaka and H. Yokoyama, Asahi Kasei E-materials, Japan*
- 24A-8-5**  
16:25  
**Direct Nanoimprinting of High Refractive Index Optical Films**  
~~*C. Pina Hernandez 1, G. Mejia Prada 1, F. Salvadori 2, Q. Fillot 2, S. Dhucy 2, G. Calafiore 1, S. Sasolini 2, S. Babin 1, S. Cabrini 2 and C. Poroz 1, 1 aBeam Technologies and 2 Lawrence Berkeley Natl. Lab., USA*~~  
**Withdrawn**
- 24A-8-6**  
16:25  
**Nanostructured Antireflective Surface with Antimicrobial Characteristics**  
*S. Kim 1, U.T. Jung 1, K.N. Kim 2, S.K. Lim 2, H. S. Choi 3, M.Y. Jeong 1, 1 Pusan Natl. Univ., 2 Natl. Nanofab Ctr. and 3 Beth Israel Deaconess Medical Ctr. and Harvard Medical School, USA*
- 16:45-16:55  
**Closing**  
S. Matsui (Univ. of Hyogo, Japan)  
Y. Hirai (Osaka Pref. Univ., Japan)  
S.Y. Chou (Princeton Univ., USA)