The 12th International Symposium on Laser Precision Microfabrication

LPM2011

June 7–10, 2011

Takamatsu, Kagawa, Japan

http://www.jlps.gr.jp/lpm/lpm2011/

Final Program

updated May 26, 2011

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Paper Codes on LPM2011 Symposium Program

Oral Presentations

The 1st & 2nd letters of the codes indicate the day of the week.

- `Tu` = Tuesday
- `We` = Wednesday
- `Th` = Thursday
- `Fr` = Friday

The 3rd number indicates the presentation room.

- `1` = Room 1 (Kagawa International Conference Hall, 6F)
- `2` = Room 2 (Room #61, Sunport Hall Takamatsu, 6F)
- `3` = Room 3 (Room #62, Sunport Hall Takamatsu, 6F)

The 4th letter indicates the presentation type.

- `PL` = Plenary
- `I` = Invited
- `O` = Oral
- `UO` = ppt with voice naration

The last number after hyphen signals the presentation order of the paper in each room.

For example, `Tu1-O-4`
[Tuesdayday] [Room 1] — [Oral Presentation] — [4th presentation in Room 1]

Poster Presentations

The 1st & 2nd letters of the codes indicate the day of the week.

- `We` =Wednesday
- `Th` =Thursday

The 3rd letter `P` and `UP` means Poster Presentation and Unmanned Poster Presentation, respectively.

The last number after hyphen signals the poster order of the paper of the day.

For example, `We-P-1`
[Wednesday] — [Poster Presentation] — [the 1st presentation on the day]

Important Notes

The poster presenters are requested to give Short Presentations and to be present in front of their poster during 12:20–14:00 of the indicated day.

Program

Program

Oral Session

Day 1
Tuesday
June 7
10:00

Room 1

Opening

10:00 **Opening Remark**

Room 1

Plenary Session

Chair: H. Niino

10:10 `Tu1-PL-1` ***Plenary*** *Video Presentation*

Quantum cascade lasers: High performance compact light sources from the mid-infrared to the far-infrared, Federico Capasso[1], [1]*School of Engineering and Applied Sciences, Harvard University, USA*

10:50 `Tu1-PL-2` ***Plenary*** *Video Presentation*

Basics and applications of femtosecond laser interaction with transparent materials, Ingolf Volker Hertel[1], Razvan Stoian[2], Arkadi Rosenfeld[1], [1]*Max Born Institute for Nonlinear Optics and Short Pulse Spectroscopy, Germany,* [2]*Laboratoire Hubert Curien, CNRS UMR 5516, Université de Lyon, Université Jean Monnet, Saint Etienne 42000, France*

11:30 `Tu1-PL-3` ***Plenary***

Technological trends and laser applications for solar panels, Wataru Shinohara[1], Youichirou Aya[1], Mitsuoki Hishida[1], Akinao Kitahara[1], Haruki Yoneda[1], Akira Terakawa[1], Masahiro Iseki[1], [1]*SANYO Electric Co., Ltd. / Solar Division / Solar Energy Research Center / Advanced Photovoltaic Development Center, Japan*

12:10 Lunch Time

Day 1
Tuesday
June 7
14:10

Room 1

Session 1.
Direct Writing

Chair: A. Piqué

14:10 Tu1-O-4

On-demand preparation of microdot patterns by laser-induced dot transfer, Aiko Narazaki[1], Ryozo Kurosaki[1], Tadatake Sato[1], Yoshizo Kawaguchi[1], Wataru Watanabe[1], Hiroyuki Niino[1], [1]*National Institute of Advanced Industrial Science and Technology (AIST), Japan*

14:30 Tu1-O-5 ***Student***

Printing micro-droplets of silver NP inks using LIFT: Parametric analysis, Michael Zenou[1,2], Shoshana Winter[1], Amir Saar[2], Zvi Kotler[1], [1]*Orbotech Ltd., Israel,* [2]*Hebrew University , Racah Insitute of Physics, Isarel*

14:50 Tu1-O-6

Wet process of Si film by laser direct writing method, Akira Watanabe[1], [1]*Institute of Multidisciplinary Research for Advanced Materials, Tohoku University, Japan*

15:10 Tu1-O-7 ***Student***

Microstructuring of glass materials using hybrid laser processing: Micro-optics and microfluidics, Daniel Nieto García[1,2], Gerard M. O'Connor[2], [1]*University of Santiago de Compostela, Spain,* [2]*National Center for Laser Applications, Ireland*

15:30 Tu1-I-8 ***Invited***

Laser micro and nanostructuring of surfaces fabricated by direct laser writing, Philippe Delaporte[1], Anne-Patricia Alloncle[1], Laurent Charmasson[1], David Grojo[1], Ludovic Rapp[1], Marc Sentis[1], [1]*LP3 laboratory – CNRS – Mediterranean University, France*

16:00 Coffee Break

Room 2

Session 3. SP1

Interactions of Liquid and Light: Fundamentals of Laser Induced Cavitation and Jetting

Chair: Alan Hunt

14:20 Tu2-UO-1 ***Student*** *PPT*

In situ detection of plasmonic enhanced ultrafast laser-induced pressure wave and cavitation bubble formation in water, Rémi Lachaine[1], Étienne Boulais[1], Michel Meunier[1], [1]*École Polytechnique de Montréal, Canada*

14:35 Tu2-UO-2 ***Student*** *PPT*

Modeling plasmonic enhanced laser-induced nanocavitation in water, Étienne Boulais[1], Rémi Lachaine[1], Michel Meunier[1], [1]*École Polytechnique de Montréal, Canada*

14:50 Tu2-I-3 ***Invited***

Protein crystallization controlled by femtoseocnd laser-induced cavitation bubbles, Hiroshi Yoshikawa[1], Ryota Murai[2,3], Gen Sazaki[4], Shigeru Sugiyama[2,3], Yoshinori Takahashi[2,3], Mihoko Maruyama[2,3], Hiroaki Adachi[2,3,5], Satoshi Murakami[3,5,6], Hiroyoshi Matsumura[2,3,5], Tsuyoshi Inoue[2,3,5], Kazufumi Takano[2,3,5], Yusuke Mori[2,3,5], [1]*Depatment of Chemistry, Saitama University, Japan,* [2]*Graduate School of Engineering, Osaka University, Japan,* [3]*CREST JST, Japan,* [4]*Phase Transition Dynamics Group, The Institute of Low Temperature Science, Hokkaido University, Japan,* [5]*SOSHO Inc., Japan,* [6]*Graduate School of Bioscience and Biotechnology, Tokyo Institute of Technology, Japan*

15:20 Tu2-O-4

Experimental and numerical study of laser-induced jetting behavior, Craig B. Arnold[1], Matthew S. Brown[1], Yiannis Ventikos[2], [1]*Department of Mechanical and Aerospace Engineering, Princeton University, USA,* [2]*Department of Engineering Science, University of Oxford, UK*

15:40 Tu2-O-5

Non-contact estimation of intercellular adhesion using femtosecond laser-induced impulsive force, Yoichiroh Hosokawa[1], Takanori Iino[1], Man Hagiyama[2], Akihiko Ito[3], [1]*Graduate School of Materials Science, Nara Institute of Science and Technology, Japan,* [2]*Institute of Medical Science, University of Tokyo, Japan,* [3]*Department of Pathology, Faculty of Medicine, Kinki University, Japan*

16:00 Coffee Break

Room 3

Session 5.

Lasers and Systems

Chair: K. Washio

14:20 Tu3-O-1

Femtosecond and picosecond lasers for precision micro-machining, Yoann Zaouter[1], Martin Delaigue[1], Sandrine Ricaud[1], Franck Morin[1], Clemens Hönninger[1], Eric Mottay, [1]*Amplitude Systemes, France*

14:40 Tu3-O-2

Ultrafast, optical parametric chirped-pulse amplification system using a block of transparent material for pulse stretching and compression, Koichi Yamakawa[1], Yutaka Akahane[1], Kanade Ogawa[1], [1]*Japan Atomic Energy Agency, Japan*

15:00 Tu3-O-3

Laser plasma EUV source for processing polymers, Henryk Fiedorowicz[1], Andrzej Bartnik[1], Roman Jarocki[1], Jerzy Kostecki[1], Anna Szczurek[1], Miroslaw Szczurek[1], Przemyslaw Wachulak[1], [1]*Institute of Optoelectronics, Military University of Technology, Poland*

15:20 Tu3-O-4

Laser scanner-stage synchronization method for high speed and wide area fabrication, Kyunghan Kim[1], Kwangho Yoon[1], Jeong Suh[1], Jaehoon Lee[1], [1]*Korea Institute of Machineray and Materials, South Korea*

15:40 Coffee Break

Day 1
Tuesday
June 7
16:30

Room 1

Session 2.
Micromachining and Modification

Chair: M. Schmidt

16:30 Tu1-UO-9 ***Student*** *PPT*

New method for nanosecond laser machining, Cinthya Emma Toro[1], Carlos Lasorsa[2], Carlos Alberto Rinaldi[3], [1]*Dept. of Micro and Nanotechnology, National Commission of Atomic Energy., Argentina,* [2]*Universidad Tecnológica Nacional, Facultad Regional Haedo, Buenos Aires, Argentina,* [3]*National Council of Scientific and Technical Research, Argentina*

16:45 Tu1-O-10 ***Student***

Laser-based fabrication of large-area controllable biomimetic microstructures, Si Zhu Wu[1], Dong Wu[1], Qi Dai Chen[1], Hong Bo Sun[1], [1]*Jilin University, China,* [2]*Jilin University, China,* [3]*Jilin University, China,* [4]*Jilin University, China*

17:05 Tu1-O-11 ***Student***

Micromachining of polymethylmethacrylate and polydimethylsiloxane using laser plasma soft X-rays, Shuichi Torii[1], Testuya Makimura[1], Kouta Okazaki[2], Daisuke Nakamura[2], Akihiko Takahashi[3], Tatsuo Okada[2], Hiroyuki Niino[4], Kouichi Murakami[1], [1]*Institute of Applied Physics, University of Tsukuba, Japan,* [2]*Graduate School of Information Sciences and Electrical Engineering, Kyushu University, Japan,* [3]*Department of Health Sciences, School of Medicine, Kyushu University, Japan,* [4]*Photonics Research Institute, National Institute of Advanced Industrial Science and Technology, Japan*

17:25 Tu1-O-12 ***Student***

Dopant activation modelling in implanted silicon under multi-pulsed excimer laser irradiation, Giuseppe Fisicaro[1,2], Karim Huet[3], Markus Italia[2], Antonino La Magna[2], Giovanni Piccitto[1], Vittorio Privitera[2], Julien Venturini[3], [1]*Department of Physics and Astronomy, University of Catania, Italy,* [2]*CNR IMM, Z.I VIII Strada 5 I -95121 Catania, Italy,* [3]*Excico 13-21 Quai des Gresillons, 92239 Gennevilliers, France*

17:45 Tu1-O-13 ***Student***

Self organized nano-cone structures on InP/InGaAs/InGaAsP microstructures irradiated by ArF and KrF excimer lasers, Neng Liu[1], Khalid Moumanis[1], Jan J. Dubowski[1], [1]*Department of Electrical and Computer Engineering, Unversité de Sherbrooke, Canada*

Room 2

Session 4. SP1

Interactions of Liquid and Light: Optofluidic Devices and Bio Applications

Chair: C. B. Arnold

16:30 Tu2-I-6 ***Invited***

Nanomorphing with ultrafast lasers and biomedical applications, Alan J. Hunt[1], [1] *Biomedical Engineering, University of Michigan, USA*

17:00 Tu2-O-7

Concentration analysis of fluids using optofluidics fabricated by femtosecond laser direct writing, Yasutaka Hanada[1], Koji Sugioka[1], Katsumi Midorikawa[1], [1] *RIKEN–Advanced Science Institute, Japan*

17:20 Tu2-O-8 ***Student***

A bacteria-driven micromotor produced by two-photon microstereolithography, Tomoyuki Sawada[1], Yuichi Hiratsuka[2], Shoji Maruo[1], [1] *Yokohama National University, Japan,* [2] *Japan Advanced Institute of Science and Technology, Japan*

17:40 Tu2-O-9

Femtosecond laser direct writing for three-dimensional micro-optical and microfluidic devices, Dong Wu[1], Qi Dai Chen[1], Si Zhu Wu[1], Hong Bo Sun[1], [1] *Jilin University, China,* [2] *Jilin University, China,* [3] *Jilin University, China,* [4] *Jilin University, China*

Room 3

Session 6.

Microwelding and Joining

Chair: W. Pfleging

16:30 Tu3-O-6

Direct joining of copper with polyethylene terephthalate using femtosecond laser pulses, Tomokazu Sano[1], Shogo Iwasaki[1], Yasuyuki Ozeki[2], Kazuyoshi Itoh[2], Akio Hirose[1], [1] *Division of Materials and Manufacturing Science, Graduate School of Engineering, Osaka University, Japan,* [2] *Division of Advanced Science and Biotechnology, Graduate School of Engineering, Osaka University, Japan*

16:50 Tu3-O-7

In-situ X-ray observation of molten pool's depth during laser micro welding, Tomonori Yamada[1], Takahisa Shobu[1], Yukihiro Yonemoto[1], Susumu Yamashita[1], Akihiko Nishimura[1], Toshiharu Muramatsu[1], [1] *Japan Atomic Energy Agency, Japan*

17:10 Tu3-O-8 ***Student***

Micro-welding of high thermal conductive material aluminum-graphite composite by pulsed Nd:YAG laser, Mohd Idris Shah Ismail[1], Yasuhiro Okamoto[1], Akira Okada[1], Yoshiyuki Uno[1], Muhaizad Mukhtar[1], [1] *Nontraditional Machining Laboratory, Graduate School of Natural Science and Technology, Okayama University, Japan*

17:30 Tu3-O-9

The reduction of postweld shift on butterfly type laser module packaging employing Nd:YAG laser and separated dual clip: Simulation and experiment, Yi-Cheng Hsu[1], Shi-Ping Hong[1], Shang-Chao Hung[2], [1] *Department of Biomechatronics Engineering, National Pingtung University of Science and Technology, Taiwan,* [2] *Department of Information Technology and Communication, Shih Chien University, Taiwan*

17:50 Tu3-O-10

Simulation model of nonlinear absorptivity in internal modification of glass using USPL, Isamu Miyamoto[1,2], Kristian Cvecek[3], Michael Schmidt[2,3,4], [1] *Osaka University, Japan,* [2] *Erlangen Graduate School of Advanced Optical Technologies (SAOT), Germany,* [3] *Bayerisches Laser Zeutrum, Germany,* [4] *University Erlangen-Nuremberl, Germany*

Room 1

Session 7.
Microstructuring I

Day 2
Wednesday
June 8
9:00

Chair: F. Dausinger

9:00 We1-UO-1 *PPT*

Machining performance of laser surface microtextured drilling tools, Milton S. F. Lima[1], Fabricio P. Ladario[2], Davi Neves[1], Rudimar Riva[1], Anselmo E. Diniz[3], [1]*Institute for Advanced Studies, Brazil,* [2]*Instituto Tecnológico de Aeronáutica (ITA), Brazil,* [3]*Faculdade de Engenharia Mecânica, Universidade Estadual de Campinas (UNICAMP), Brazil*

9:15 We1-O-2 ***Student***

Picosecond laser direct patterning of poly(3,4-ethylene dioxythiophene)-poly(styrene sulfonate) (PEDOT-PSS) thin films, Shizhou Xiao[1], Susana Abreu Fernandes[1], Andreas Ostendorf[1], [1]*Laser Application of Technologies, Ruhr University Bochum, Germany*

9:35 We1-O-3

A comparative study of the quantum well intermixing effect in InGaAsP/InGaAs/InP heterostructures induced by irradiation with 248 and 193 nm excimer lasers, Jonathan Genest[1], Romain Béal[1], Neng Liu[1], Khalid Moumanis[1], Vincent Aimez[1], Jan J. Dubowski[1], [1]*Department of Electrical and Computer Engineering, Université de Sherbrooke, Canada*

9:55 We1-O-4

Cutting and thining vertically aligned carbon nanotube carpets by lateral femtoseconde laser ablation, Pascal Boulanger[1], Olivier Sublemontier[1], Romain Ladret[1], Olivier Gobert[1], Christian Cornaggia[1], Mathieu Pinault, Martine Mayne-l'Hermitte, [1]*Atomic Energy Commission, Francis Perrin Laboratory, France*

10:15 We1-O-5 ***Student***

Thin composite optical elements fabricated with laser direct imaging technique, Blaž Kavčič[1], Dušan Babić[2], Boštjan Podobnik[1], Igor Poberaj[2], [1]*LPKF Laser & Electronics, Slovenia,* [2]*Faculty of Mathematics and Physics, University of Ljubljana, Slovenia*

10:35 We1-O-6

Laser-induced backside wet etching employing green DPSS laser and liquid metallic absorber, Tadatake Sato[1], Yoshizo Kawaguchi[1], Ryozo Kurosaki[1], Aiko Narazaki[1], Wataru Watanabe[1], Hiroyuki Niino[1], [1]*National Institute of Advanced Industrial Science and Technology (AIST), Japan*

10:55 Coffee Break

Poster 1 Chair: Y. Nakata

11:20 **Short Presentation 1 for Poster Session 1** ***Room 1***

12:20 **Poster Session 1 and Exhibition** ***Small Hall 2 (5F)***

Lunch Time

Room 2

Session 10.
Microfabrication for Photonics

Chair: Y. Bellouard

9:00 We2-O-1
UV laser processing and multiphoton absorption processes in optical fibers, Matthieu Lancry[1], Bertrand Poumellec[1], Nathaniel Groothoff[2], John Canning[2], [1] *University of Paris Sud 11, France,* [2] *Interdisciplinary Photonics Laboratories (iPL), School of Chemistry, University of Sydney, Australia*

9:20 We2-O-2 ***Student***
Two-photon-induced microfabrication of flexible optical waveguides, Josef Kumpfmueller[1], Klaus Stadlmann[2], Zhiquan Li[1], Gerhard Schmid[3], Juergen Stampfl[2], Robert Liska[1], [1] *Institute of Applied Synthetic Chemistry, Vienna University of Technology, Austria,* [2] *Institute of Material Science and Technology, Vienna University of Technology, Austria,* [3] *Institute of Communications and Radio Frequency Engineering, Vienna University of Technology, Austria*

9:40 We2-O-3
System for the fabrication of flexible optical interconnects by two photon polymerization (2PP), Klaus Stadlmann[1], Josef Kumpfmüller[2], Anne-Laure Calendron[3], Robert Copperwhite[4], Robert Liska[2], Jürgen Stampfl[1], Aleksandr Ovsianikov, [1] *Institute of Material Science and Technology, Vienna University of Technology, Austria,* [2] *Institute of Applied Synthetic Chemistry, Vienna University of Technology, Austria,* [3] *HighQ Laser GmbH Feldgut 9 A-6830 Rankweil, Austria,* [4] *Optical Sensors Laboratory (OSL), National Centre for Sensor Research (NCSR), Ireland*

10:00 We2-O-4
Fabrication of 3D diffractive photonic crystal collimator by femtosecond direct laser writing in photoresist, Vygantas Mizeikis[1], Lina Maigyte[2], Kestutis Staliunas[2], Saulius Juodkazis[3], [1] *Division of Global Research Leaders (Research Institute of Electronics), Shizuoka University, Japan,* [2] *Departament de Física i Enginyeria Nuclear, Universitat Politècnica de Catalunya, Spain,* [3] *Centre for Micro-Photonics, Swinburne University of Technology, Australia*

10:20 We2-I-5 ***Invited***
Harnessing burst trains to control ultrafast laser interactions, Peter R. Herman[1], [1] *Dept. Electrical and Computer Engineering, University of Toronto, Canada*

10:50 Coffee Break

Room 3

Session 13.
Microdrilling

Chair: S. Katayama

9:00 We3-I-1 ***Invited***
Flexible and precise material processing with femtosecond disk lasers, Steffen Sven Sommer[1], Friedrich Dausinger[2], [1] *Technologiegesellschaft für Strahlwerkzeuge mbH, Germany,* [2] *Dausinger + Giesen GmbH, Germany*

9:30 We3-O-2
Modeling of Cu direct laser drilling process, Junichi Okada[1], Yuuji Okamoto[1], Kazumasa Shudo[1], Masafumi Yorozu[1], [1] *Sumitomo Heavy Industries, Ltd. Research & Development Center, Japan*

9:50 We3-O-3
Impact of laser hole drilling on the fracture strength of metal wrap-through (MWT) solar cells, Kyumin Lee[1], Jong-Keun Lim[1], Sang-Kyun Kim[1], In-Sik Moon[1], Won-jae Lee[1], Eun-Chel Cho[1], [1] *Hyundai Electro-Mechanical Research Institute (HEMRI), Hyundai Heavy Industries Co. LTD., South Korea*

10:10 We3-O-4
Microdrilling in GFRP sheet using UV solid state laser, Susumu Nakamura[1], [1] *Department of Electrical and Electronic Systems Engineering, Nagaoka National College of Technology, Japan*

10:30 We3-O-5 ***Student***
An accurate ray tracing model for CFD simulation of laser drilling process, Junsu Ahn[1], Suck-Joo Na[1], [1] *Department of Mechanical Engineering, Korea Advanced Institute of Science and Technology, Republic of Korea*

10:50 Coffee Break

Poster 1

Chair: Y. Nakata

11:20 **Short Presentation 1 for Poster Session 1** ***Room 1***

12:20 **Poster Session 1 and Exhibition** ***Small Hall 2 (5F)***

Lunch Time

Day 2
Wednesday
June 8
14:10

Room 1

Session 8.
Microstructuring II

Chair: A. Ostendorf

14:10 `We1-O-7`

High quality ceramic microfabrication by pulsed fiber laser in different ambients, Minghui Hong[1,2], Zhenying Pan[2], Xiaozhu Xie[1,3], [1]*Department of Electrical and Computer Engineering, National University of Singapore, Singapore,* [2]*Data Storage Institute, Singapore,* [3]*Faculty of Electromechanical Engineering, Guangdong University of Technology, China*

14:30 `We1-O-8`

Optimisation of laser microprocessing by innovative methods of nanosecond pulselength tuning of disc lasers, Klaus P. Stolberg[1], Susanna Friedel[1], Sven Poggel[1], Tamehide Yamada[2], [1]*Jenoptik Laser GmbH, Germany,* [2]*4666 Ikebe-cho, Tsuzuki-ku, Yokohama, Kanagawa 224-0053, Japan*

14:50 `We1-O-9`

Selective laser melting: From process fundamentals towards advanced products, Igor Yadroitsev[1], Andrey Gusarov[1], Igor Smurov[1], [1]*Ecole Nationale d'Ingénieurs de Saint-Etienne (ENISE), DIPI Laboratory, France*

15:10 `We1-O-10`

Femtosecond laser-assisted etching of fluoride crystals, Shigeki Matsuo[1], Kodai Iwasa[1], Takuro Tomita[1], Shuichi Hashimoto[1], [1]*Department of Ecosystem Engineering, The University of Tokushima, Japan*

15:30 `We1-I-11` ***Invited***

3D structures in battery materials, Wilhelm Pfleging[1], Robert Kohler[1], Michael Bruns[1], Carlos Ziebert[1], Johannes Proell[1], [1]*Karlsruhe Institute of Technology, Germany*

16:00 Coffee Break

Room 2 ***Room 3***

Session 11. SP2
Laser-Induced Deposition

Chair: B. Huis in 't Veld

14:30 We2-I-6 ***Invited***

Characterization of the laser decal transfer process, Scott A. Mathews[1,2], Ray Auyeung[2], Andrew Birnbaum[2], Heungsoo Kim[2], Alberto Piqué[2], [1]*Materials Science and Technology Division, Code 6364, Naval Research Laboratory, USA*

15:00 We2-O-7

Formation of adhesive metal microstructures inside glass by femtosecond laser direct writing, Jian Xu[1], Szabolcs Beke[1], Koji Sugioka[1], Katsumi Midorikawa[1], [1]*Laser Technology Laboratory, RIKEN – Advanced Science Institute, Japan*

15:20 We2-O-8

High-power excimer lasers for coated conductor upscaling, Ralph Delmdahl[1], Burkhard Fechner[1], [1]*Coherent GmbH, Germany*

15:40 We2-O-9

Synthesis of core/shell nanowires using doped ZnO targets, Daisuke Nakamura[1], Kota Okazaki[1], Akio Kumeda[1], Kazuyuki Toya[1], Kazuki Kubo[1], Koji Tsuta[1], Mitsuhiro Higashihata[1], Tatsuo Okada[1], [1]*Kyushu University, Japan*

16:00 Coffee Break

Day 2
Wednesday
June 8
16:30

Room 1

Session 9.
Ultrafast Laser Processing: Micromachining and Drilling

Chair: M. H. Hong

16:30 We1-O-12 ***Student***

Water-assisted ultrashort laser pulse ablation, Martti Veli Johannes Silvennoinen[1], Jarno Jere, Juhani Kaakkunen[1], Kimmo Päiväsaari[1], Pasi Vahimaa[1], [1]*Department of Physics and Mathematics, University of Eastern Finland, Finland*

16:50 We1-O-13 ***Student***

Focus position and polarization effects in ultrafast laser drilling of cemented tungsten carbide, Khai Pham Xuan[1], Rie Tanabe[1], Yoshiro Ito[1], [1]*Department of Mechanical Engineering, Nagaoka University of Technology, Japan*

17:10 We1-O-14

The effect of burst mode on TSV process using a picosecond laser, Dongsig Shin[1], Jeong Suh[1], Yongkwon Cho[1], [1]*Dept. of High Density Energy Beam Processing & System, Korea Institute of Machinery and Materials (KIMM), South Korea*

17:30 We1-O-15

Multi-layer patterning of organic semiconductor thin film layers with ultra short pulsed lasers, Wayne Lewis[1], Tino Petsch[2], Jens Hänel[2], Markus Lasch[2], [1]*Beams Inc., Japan,* [2]*3D-Micromac AG, Germany*

17:50 We1-O-16

High power short and ultra short laser pulses for industrial micro machining, Birgit Faisst[1], Simone Russ[2], Sascha Weiler[1], Severin Massa[2], Jan Wieduwilt[1], Christof Siebert[1], [1]*TRUMPF Laser- und Systemtechnik GmbH, Germany,* [2]*TRUMPF Laser GmbH + Co. KG, Germany*

Room 2

Session 12. SP2
Laser-Induced Deposition

Chair: S. A. Mathews

16:30 We2-I-10 ***Invited***

Laser induced forward transfer of functional materials: The European eLIFT Project, Christof Walter Schneider[1], Thomas Lippert[1], Philippe Delaporte[2], [1]*Paul Scherrer Institut, General Energy Research Department, CH-5232 Villigen PSI, Switzerland,* [2]*Laboratoir Lasers, Plasmas et Procédés Photoniques, F-13288 Marseille cedex 9, France*

17:00 We2-O-11

Picosecond laser induced forward transfer of Cu, Bert Huis in 't Veld[1,2], G. Oosterhuis[2], [1]*University of Twente, The Netherlands,* [2]*TNO Science and Industry, The Netherlands*

17:20 We2-O-12

Generation of 3-D structures by Laser Origami, Alberto Piqué[1], Scott A. Mathews[1], Andrew Birnbaum[1], Ray Auyeung[1], Nick Charipar[1], Heungsoo Kim[1], Kristin Metkus[1], [1]*Materials Science and Technology Division, Code 6364, Naval Research Laboratory, USA*

Room 3

Session 14.
Biomedical Applications

Chair: Jan J. Dubowski

16:30 We3-O-6

Contorol of antibody immobilization by laser micro-processing, Yuji Yamachoshi[1], Masato Tanaka[1], Tomonori Nakahara[1], Kaori Abe[1], Masatoshi Kataoka[1], Toshihiko Ooie[1], [1]*AIST,Health Research Institute, Japan*

16:50 We3-O-7

3D photofabrication by femtosecond laser pulses and its applications in biomedicine, Aleksandr Ovsianikov[1], Jan Torgersen[1], Zhiquan Li[2], Robert Liska[2], Jürgen Stampfl[1], [1]*Institute of Materials Science and Technology, Vienna University of Technology, Austria,* [2]*Institute of Applied Synthetic Chemistry, Vienna University of Technology, Austria*

17:10 We3-O-8 ***Student***

Near-net-shape fabrication of three-dimensional bioceramic scaffolds using microstereolithography and ceramic slurry, Takashi Torii[1], Makoto Inada[1], Shoji Maruo[1], [1]*Yokohama National University, Japan*

17:30 We3-I-9 ***Invited***

Laser-based micro- and nanofabrication for photonics and biomedicine, Kotaro Obata[1], Boris N. Chichkov[1], [1]*Laser Zentrum Hannover e.V., Nanotechnology Department, Germany*

Room 1

Session 15.
Ultrafast Laser Processing: Internal Micromachining

Day 3
Thursday
June 9
9:00

Chair: Y. Cheng

9:00 `Th1-UO-1` *PPT*

Multipoint focusing of single ultrafast laser pulses, Cyril Mauclair[1], Alexandre Mermillod-Blondin[2], Arkadi Rosenfeld[2], Ingolf V. Hertel[2], Eric Audouard[1], Isamu Miyamoto[3], Razvan Stoian[1], [1]*Laboratoire Hubert Curien (UMR 5516 CNRS), Université de Lyon, Université de Saint-Étienne, France,* [2]*Max-Born Institut für Nichtlineare Optik und Kurzzeitspektroskopie, Germany,* [3]*Osaka University, Japan*

9:15 `Th1-I-2` ***Invited***

The Femtoprint project, Yves Bellouard[1], A. Champion[1], M. Matteucci[1], M. Gevincevicius[2], C. Corbari[2], M. Beresna[2], P. Kazansky[2], O. Chappuis[3], M. Kral[3], R. Clavel[3], J. -M. Breguet[4], F. Barrot[4], Y. Mabillard[5], S. Bottinelli[5], M. Hopper[6], C. Hoenninger[7], E. Mottay[7], J. Lopez[8], [1]*Mechanical Engineering Department, Eindhoven University of Technology, The Netherlands,* [2]*Optoelectronics Research Center (ORC), University of Southampton, United Kingdom,* [3]*Ecole Polytechnique Fédérale de Lausanne, Switzerland,* [4]*Centre Suisse dElectronique et Microtechnique (CSEM), Switzerland,* [5]*Mecartex, Switzerland,* [6]*Quintenz Hybridtechnik, Germany,* [7]*Amplitude Systèmes, France,* [8]*AlphaNOV, France*

9:45 `Th1-O-3`

Fabrication of microstructure arrays on photosensitive glass by femtosecond laser, P. N. Wan[1], C. W. Cheng[2], J. S. Chen[3], [1]*Department of Mechanical Engineering, National Chung Cheng University, Taiwan, R.O.C.,* [2]*ITRI South, Industrial Technology Research Institute, Taiwan, R.O.C.,* [3]*Department of Mechanical Engineering, National Chung Hsing University, Taiwan, R.O.C.*

10:05 `Th1-I-4` ***Invited***

Micro-explosions triggered by femtosecond laser pulses: New tool of nano-structuring, Saulius Juodkazis[1], Arturas Vailionis[2,3], Eugene G. Gamaly[4], Vygantas Mizeikis[5], Wenge Yang[6], Andrei Rode[4], [1]*Swinburne University of Technology, Australia,* [2]*Stanford University, USA,* [3]*SLAC National Accelerator Laboratory, USA,* [4]*The Australian National University, Australia,* [5]*Shizuoka Univ, Japan,* [6]*Argonne National Laboratory, USA*

10:35 `Th1-O-5`

The origin of femtosecond laser induced form birefringence in silica glass, Matthieu Lancry[1], Bertrand Poumellec[1], Kevin Cook[2], John Canning[2], [1]*University of Paris Sud 11, France,* [2]*Interdisciplinary Photonics Laboratories (iPL), School of Chemistry, University of Sydney, Australia*

10:55 *Coffee Break*

Poster 2 Chair: M. Okoshi

11:20 **Short Presentation 2 for Poster Session 2** ***Room 1***

12:20 **Poster Session 2 and Exhibition** ***Small Hall 2 (5F)***

Lunch Time

Room 2 ***Room 3***

Session 18.
Scribing and Cutting

Chair: S. H. Cho

9:20 Th2-O-1 ***Student***

Scribing of thin-film solar cells with picosecond and femtosecond lasers, Paulius Gecys[1], Gediminas Račiukaitis[1], Anja Wehrmann[2], Klaus Zimmer[2], Alexander Braun[3], Steffen Ragnow[3], [1]*Center for Physical Sciences and Technology, Lithuania,* [2]*Leibniz-Institute of Surface Modification, Germany,* [3]*Solarion AG, Germany*

9:40 Th2-O-2

Progress in picosecond-laser scribing for CIGS solar cells, Gediminas Račiukaitis[1], Paulius Gecys[1], Simonas Grubinskas[1], Mindaugas Gedvilas[1], Alexander Braun[2], Steffen Ragnow[2], [1]*Center for Physical Sciences and Technology, Lithuania,* [2]*Solarion AG, Germany*

10:00 Th2-O-3 ***Student***

Thermal stress analysis considering frequency in laser scribing of glass, Keisuke Yahata[1], Etsuji Ohmura[1], Seiji Shimizu[2], Masanao Murakami[2], [1]*Osaka University, Japan,* [2]*Mitsuboshi Diamond Industrial Co., Ltd., Japan*

10:20 Th2-O-4

Laser grooving with line-shaped femtosecond laser pulses, Satoshi Hasegawa[1], Yoshio Hayasaki[1], [1]*Center for Optical Research and Education (CORE), Utsunomiya University, Japan*

10:40 Th2-O-5

Indirect laser glass cutting using a fiber-laser, Joohan Kim[1], Wonseok Choi[1], Chulku Lee[1], [1]*Seoul National University of Science and Technology, Korea*

11:00 Coffee Break

Poster 2 Chair: M. Okoshi

11:20 **Short Presentation 2 for Poster Session 2** ***Room 1***

12:20 **Poster Session 2 and Exhibition** ***Small Hall 2 (5F)***

Lunch Time

Room 1

Day 3
Thursday
June 9
14:00

Session 16.
Ultrafast Laser Processing: Micro and Nano Texturing

Chair: J. Reif

14:00 Th1-UO-6 ***Student*** *PPT*

Mechanisms of plasmonic enhanced laser nanoablation of silicon, Alexandre Robitaille[1], Étienne Boulais[1], Michel Meunier[1], [1]*École Polytechnique de Montréal, Canada*

14:15 Th1-O-7

Formation of fine ripples on surfaces of dielectrics and semiconductors, Ričardas Buivydas[1], Vygantas Mizeikis[2], Lorenzo Rosa[1], Remigijus Šliupas[3], Tadas Kudrius[3], Gintas Šlekys[3], Saulius Juodkazis[1], [1]*Swinburne University of Technology, Australia,* [2]*Shizuoka Univ., Japan,* [3]*Altechna Ltd., Lithuania*

14:35 Th1-O-8 ***Student***

Femtosecond laser induced nanostructures inside the microholes on soda-lime glass surface, Md. Shamim Ahsan[1,2], Man Seop Lee[1], [1]*Photonics Application Lab, Korea Advanced Institute of Science and Technology (KAIST), South Korea,* [2]*Electronics and Communication Engineering Discipline, Khulna University, Bangladesh*

14:55 Th1-O-9

Flexible microstructuing of thin films using multi-beam interference ablation with ultrashort lasers, Bogdan Voisiat[1], Mindaugas Gedvilas[1], Simonas Indrišiūnas[1], Gediminas Račiukaitis[1], [1]*Center for Physical Sciences and Technology, Lithuania*

15:15 Th1-O-10

Comparison of picosecond and femtosecond laser ablation for surface engraving of metals and semiconductors, Eric Mottay[1], Martin Delaigue[1], Clemens Hönninger[1], John Lopez[2,3], Anne Lidolff[2], [1]*Amplitude Systemes, France,* [2]*Alphanov, France,* [3]*Université Bordeaux 1, France*

15:35 Th1-O-11 ***Student***

Nano band texturing on azobenzene polymer by nanosecond pulse laser exposure, Jintang Huang[1,2], Stefan Beckemper[2], Si Wu[3], Qijin Zhang[3], Keyi Wang[1], Arnold Gillner[2], [1]*Department of Precision Machinery and Precision Instrumentation, University of Science and Technology of China, China,* [2]*Fraunhofer Institute for Laser Technology ILT / Chair for Laser Technology LLT, RWTH Aachen, Germany,* [3]*Department of Polymer Science and Engineering, University of Science and Technology of China, China*

15:55 Coffee Break

Room 2

Session 19.
Surface Modification

Chair: T. Makimura

14:10 Th2-I-6 ***Invited***

Laser decontamination of radioactive nuclides polluted metallic surfaces, Vadim P. Veiko[1], Timofey Yu. Mutin[1], Valentin N. Smirnov[1], Andrey A. Samokhvalov[1], [1]*St. Petersburg State University of Information Technologies, Mechanism and Optics, Russia*

14:40 Th2-O-7

Laser microtexturing with positive features for improvement of surface interaction of components in viscous fluids, Pablo M. Romero Romero[1], Nerea Otero Ramudo[1], Alejandro González Solar[1], Alessandra Scano[2], [1]*AIMEN – Laser Applications Centre, Spain,* [2]*AIN – Asociación de la Industria Navarra, Spain*

15:00 Th2-O-8

Surface texturing with laser micro cladding to improve tribological properties, Nerea Otero Ramudo[1], Pablo M. Romero Romero[1], Alejandro González Solar[1], Alessandra Scano[2], [1]*AIMEN – Laser Applications Centre, Spain,* [2]*AIN – Asociación de la Industria Navarra, Spain*

15:20 Th2-O-9

Laser treatment of ITO and ZnO nanoparticles for the production of thin conducting layers on transparent substrates, Marcus Baum[1], Ilya Alexeev[1,2], Michael Schmidt[1,2], [1]*Chair of Photonic Technologies, University of Erlangen-Nuremberg, Germany,* [2]*Erlangen Graduate School in Advanced Optical Technologies, Germany*

15:40 Th2-O-10 ***Student***

Laser-assisted periodic diameter modulation of carbon nanotubes trough rapid modulation of temperature, Masoud Mahjouri-Samani[1], Yunshen Zhou[1], Wei Xiong[1], Yongfeng Lu[1], [1]*University of Nebraska-Lincoln, USA*

16:00 Coffee Break

Room 3

Session 21.
Fundamentals and Monitoring

Chair: R. F. Haglund, Jr.

14:20 Th3-O-1

Comprehensive optical monitoring of selective laser melting, Maria Doubenskaia[1], Yuri Chivel[1], Mikhail Pavlov[1], Igor Smurov[1], [1]*Ecole Nationale d'Ingénieurs de Saint-Etienne (ENISE), DIPI Laboratory, France*

14:40 Th3-O-2 ***Student***

Dynamics of laser induced under liquid ablation studied by photoelasticity technology, Thao Nguyen[1], Rie Tanabe[1], Yoshiro Ito[1], [1]*Department of Mechanical Engineering, Nagaoka Uinversity of Technology, Japan*

15:00 Th3-O-3 ***Student***

Observation of femtosecond-laser ablation process by using the soft X-ray laser interferometer, Minoru Yamamoto[1,2], Noboru Hasegawa[2], Kota Terakawa[3], Yoshifumi Umeda[1], Takuro Tomita[1], Yoshihiro Ochi[2], Takeshi Kaihori[2], Tetsuya Kawachi[2], Yasuo Minami[3], Tohru Suemoto[3], [1]*Department of Ecosystem Engineering, The University of Tokushima, Japan,* [2]*Quantum Beam Science Directorate, Japan Atomic Energy Agency, Japan,* [3]*Institute for Solid State Physics, The University of Tokyo, Japan*

15:20 Th3-O-4 ***Student***

Non-thermal energetic ion emission from copper by the ablation with a low fluence femtosecond laser pulse, Yasuhiro Miyasaka[1,2], Masaki Hashida[1,2], Yoshinobu Ikuta[1,2], Kazuto Otani[1,2], Shigeki Tokita[1,2], Shuji Sakabe[1,2], [1]*ARBS, Institute for Chemical Research, Kyoto University, Japan,* [2]*Department of Physics, Graduate School of Science, Kyoto University, Japan*

15:40 Th3-O-5

Laser removal mechanisms of metallic droplets, Aude Vatry[1], Christian Grisolia[2], David Grojo[1], Marc Sentis[1], Philippe Delaporte[1], [1]*LP3 laboratory – CNRS – Mediterranean University, France,* [2]*Association Euratom/CEA, IRFM, France*

16:00 Coffee Break

Room 1

Session 17.
Ultrafast Laser Processing: LIPS Formation

Day 3
Thursday
June 9
16:30

Chair: K. Miyazaki

16:30 Th1-UO-12 *PPT*

Ultrafast laser-induced periodic-surface structure: Formation mechanisms and applications in laser marking, Jean-Philippe Colombier[1], Florence Garrelie[1], Florent Pigeon[1], Razvan Stoian[1], Mourad Bounhalli[1], Stéphanie Reynaud[1], Nicolas Faure[1], Philippe Brunet[2], Benjamin Dusser[1], Eric Audouard[1], [1]*Université de Lyon, F-69003, Université de Saint-Etienne, Laboratoire Hubert Curien (UMR 5516 CNRS), France,* [2]*Laboratoire de Mécanique de Lille, UMR CNRS 8107, Boulevard Paul Langevin, 59655 Villeneuve d'Ascq Cédex, France*

16:45 Th1-O-13

Periodic nano-grating structures produced by femtosecond laser pulses for metals with low- and high-melting points, Masaki Hashida[1,2], Yasuhiro Miyasaka[1,2], Yoshinobu Ikuta[1,2], Kazuto Otani[1,2], Shigeki Tokita[1,2], Shuji Sakabe[1,2], [1]*Advanced Research Center for Beam Science, Institute for Chemical Reserch, Kyoto University, Japan,* [2]*Department of Physics, Graduate School of Science, Kyoto University, Japan*

17:05 Th1-O-14

Femtosecond laser ablation from silicon and ripples formation: Evolution of surface excitation, Mourad Bounhalli[1,3], Marco Muth[1], Olga Varlamova[1,2], Juergen Reif[1,2], [1]*Brandenburg. Tech. Univ. BTU Cottbus, Germany,* [2]*JointLab Cottbus, Germany,* [3]*Laboratoire Hubert Curien, Université Jean Monnet, St. Etienne, France*

17:25 Th1-O-15

The role of anisotropic excitation in self-organized nanostructure formation upon femtosecond laser ablation, Olga Varlamova[1,2], Sergej Varlamov[1], Michael Bestehorn[1], Juergen Reif[1,2], [1]*Brandenburg. Tech. Univ. BTU Cottbus, Germany,* [2]*JointLab Cottbus, Germany*

17:45 Th1-O-16 ***Student***

Formation of nanostructures on the stainless steel surface by femtosecond laser pulses, Md. Shamim Ahsan[1,2], Yeong Gyu Kim[1], Man Seop Lee[1], [1]*Photonics Application Lab, Korea Advanced Institute of Science and Technology (KAIST), South Korea,* [2]*Electronics and Communication Engineering Discipline, Khulna University, Bangladesh*

Banquet

18:30 **from the venue to Banquet on foot**

19:00 **Banquet** ***ANA Hotel Clement Takamatsu***

Room 2

Session 20. SP3

Nanomaterials and Nanostructures: 3D Nano/Microfabrication

Chair: K. Ueno

16:30 Th2-I-11 ***Invited***

Recent developments in RAPID photolithography, John T. Fourkas[1–4], Michael P. Stocker[1], Linjie Li[1], Rafael R. Gattass[1], [1]*Department of Chemistry & Biochemistry, University of Maryland, USA,* [2]*Institute for Physical Science and Technology, University of Maryland, USA,* [3]*Center for Nanophysics and Advanced Materials, University of Maryland, USA,* [4]*Maryland NanoCenter, University of Maryland, College Park, USA*

17:00 Th2-O-12

Two-photon fabrication of three-dimensional metallic nanostructures for plasmonic metamaterials, Atsushi Ishikawa[1], Takuo Tanaka[1,2], [1]*RIKEN, Metamaterials Laboratory, Japan,* [2]*Hokkaido University, Research Inst. for Electronic Science, Japan*

17:20 Th2-O-13

3D microfluidic structures directly fabricated in mesoporous glass by water-assisted femtosecond laser direct writing, Yang Liao[1], Yong Feng Ju[1], Long Zhang[1], Fei He[1], Ya Cheng[1], Zhi Zhan Xu[1], Koji Sugioka[2], Katsumi Midorikawa[2], [1]*State Key Laboratory of High Field Laser Physics, Shanghai Institute of Optics and Fine Mechanics, Chinese Academy of Sciences, China,* [2]*Laser Technology Laboratory, RIKEN – Advanced Science Institute, Japan*

17:40 Th2-O-14 ***Student***

A laser-driven microrotor using total internal reflection illumination, Masaki Ikegame[1], Soichiro Murakami[1], Shoji Maruo[1], [1]*Yokohama National University, Japan*

18:00 Th2-O-15 ***Student***

Assembling heterogeneous microstructures using holographic optical tweezers, Reza Ghadiri[1], Cemal Esen[1], Andreas Ostendorf[1], [1]*Ruhr-University Bochum, Institute of Laser Applications Technology, Germany*

Room 3

Session 22.

Advanced Material Synthesis

Chair: V. P. Veiko

16:30 Th3-O-6

Fabrication of SALDI substrate using laser ablation in liquids, Takeshi Tsuji[1], Masato Yasutomo[1], Masaharu Tsuji[1], Hideya Kawasaki[2], Tetsu Yonezawa[3], Fumitaka Mafune[4], [1]*Institute of Advanced Materials Chemistry and Interdisciplinary Graduate School of Engineering Sciences, Kyushu University, Japan,* [2]*Department of Applied Chemistry, Faculty of Engineering, Kansai University, Japan,* [3]*Division of Materials Science and Engineering, Faculty of Engineering, Hokkaido University, Japan,* [4]*Department of Basic Science, Graduate School of Arts and Sciences, The University of Tokyo, Japan*

16:50 Th3-O-7 ***Student***

Laser excitations of precursor molecules by different laser powers in laser-assisted growth of diamond films, Zhiqiang Xie[1], Xiangnan He[1], Wei Hu[1], Yang Gao[1], Thomas Guillemet[1], Jongbok Park[1], Yunshen Zhou[1], Yongfeng Lu[1], [1]*University of Nebraska-Lincoln, USA*

17:10 Th3-O-8 ***Student***

Using laser microfabrication to generate conductive polymer/SWNTs nanocomposites, Qingchuan Guo[1], Shizhou Xiao[1], Andreas Aumann[1], Matthias Jaeger[1], M'Barek Chakif[1], Reza Ghadiri[1], Andreas Ostendorf[1], [1]*Ruhr-University Bochum, Department of Laser Applications Technology, Germany*

17:30 Th3-O-9

Laser fabrication of nanocomposites in presence of matrix-coupling agents, Anne Hahn[1], Daniel Bartke[1,2], Philipp Wagener[1], Stephan Barcikowski[2], [1]*Laser Zentrum Hannover e. V., Germany,* [2]*Particular GmbH, Germany*

17:50 Th3-I-10 ***Invited***

Laser processing and diagnostic explorations of non-equilibrium nanomaterial growth, David B. Geohegan[1], A. A. Puretzky[1], J. D. Readle[1], M. Regmi[2], J. J. Jackson[2], C. M. Rouleau[1], N. Thonnard[1], G. Eres[2], M. Yoon[2], K. Xiao[1], G. J. M. Duscher[2,3], M. F. Chisholm[2], K. L. More[2], [1]*Center for Nanophase Materials Sciences, Oak Ridge National Laboratory, USA,* [2]*Materials Science and Technology Division, Oak Ridge National Laboratory, USA,* [3]*Materials Science and Engineering Dept., Univeristy of Tennessee, USA*

Banquet

18:30 **from the venue to Banquet on foot**

19:00 **Banquet** ***ANA Hotel Clement Takamatsu***

Room 1

Day 4
Friday
June 10
9:00

Session 23.
Ultrafast Laser Processing: Creation of New Functions

Chair: Y. F. Lu

9:00 Fr1-O-1 ***Student***

Quenching non-equilibrium high-pressure phases of Si using femtosecond laser-driven ultrashort shock, Masashi Tsujino[1], Tomokazu Sano[1], Norimasa Ozaki[1], Osami Sakata[2], Kazuto Arakawa[3], Masayuki Okoshi[4], Narumi Inoue[4], Hirotaro F. Mori[3], Kojiro F. Kobayashi[5], Ryosuke Kodama[1], Akio Hirose[1], [1]*Graduate School of Engineering, Osaka University, Japan,* [2]*Japan Synchrotron Radiation Research Institute / SPring-8, Japan,* [3]*Research Center for Ultra-High Voltage Electron Microscopy, Osaka University, Japan,* [4]*Department of Electrical and Electronic Engineering, National Defense Academy, Japan,* [5]*The Wakasa Wan Energy Research Center, Japan*

9:20 Fr1-O-2 ***Student***

Variation of electric resistance of functional ceramics by shortpulse and CW laser irradiation, Togo Shinonaga[1], Masahiro Tsukamoto[2], Masataka Takahashi[3], Masayuki Fujita[4], Nobuyuki Abe[2], [1]*Graduate School of Engineering, Osaka University, Osaka, Japan,* [2]*Joining and Welding Research Institute, Osaka University, Osaka, Japan,* [3]*Osaka Municipal Technical Research Institute, Osaka, Japan,* [4]*Institute for Laser Technology, Osaka, Japan*

9:40 Fr1-O-3

Magnetic and optical properties of Fe^{3+}-doped transparent glasses irradiated with femtosecond laser, Seisuke Nakashima[1], Koji Sugioka[1], Katsumi Midorikawa[1], [1]*Riken – Advanced Science Institute, Japan*

10:00 Fr1-O-4

Femtosecond laser activation of photoluminescence in the bulk of Bi-doped glasses, Vitali Kononenko[1], Vladimir Pashinin[1], Boris Galagan[1], Sergey Sverchkov[1], Boris Denker[1], Vitali Konov[1], Evgeniy Dianov[2], [1]*General Physics Institute, Russia,* [2]*Fiber Optics Research Center at General Physics Institute, Russia*

10:20 Fr1-O-5

Laser micro-machining of hydrophobic-hydrophilic patterns for fluid driven self-alignment in micro-assembly, G. R. B. E. Römer[1], M. M. J. Jorritsma[1], A.J. Huis in 't Veld[2], [1]*University of Twente, Faculty of Engineering Technology, Chair of Applied Laser Technology, The Netherlands,* [2]*University of Twente, Faculty of Engineering Technology, Chair of Applied Laser Technology and TNO Science & Industry, Department Materials Technology, The Netherlands*

10:40 Coffee Break

Room 2

Session 25. SP3

Nanomaterials and Nanostructures: Nanophotonics and Plasmonics

Chair: John T. Fourkas

9:20 `Fr2-I-1` ***Invited***

Nanophotonic etching of glass substrate for Å-scale surface roughness, Takashi Yatsui[1], Wataru Nomura[1], Motoichi Ohtsu[1], [1] *The University of Tokyo, Japan*

9:50 `Fr2-O-2` ***Student***

Application of Gaussian optical tweezers for ultrafast laser assisted direct-write nanostructuring, Ulf Quentin[1,2], Karl-Heinz Leitz[1,2], Ilya Alexeev[1,2], Michael Schmidt[1,2], [1] *Chair of Photonic Technologies, University of Erlangen-Nuremberg, Germany,* [2] *Erlangen Graduate School in Advanced Optical Technologies, Germany*

10:10 `Fr2-O-3` ***Student***

Nano porous processing of polymer films based on resonant excitation of localized surface plasmon of Au nanoparticles, Keita Muraoka[1], Tatsuya Shoji, Noboru Kitamura, Yasuyuki Tsuboi, [1] *School of Science, Hokkaido Univ., Japan*

10:30 Coffee Break

Room 3

Session 27.

Fundamentals and Photochemistry

Chair: Y. Ito

9:00 `Fr3-O-1`

Measurement of light-induced refractive index change in photopolymer with digital holographic microscopy, Wataru Watanabe[1], Hidenobu Arimoto[1], Kazuyoshi Masaki[2], Takashi Fukuda[1], [1] *Photonics Research Institute, National Institute of Advanced Industrial Science and Technology, Japan,* [2] *Nippon Steel Chemical Co. Ltd., Japan*

9:20 `Fr3-O-2`

Electronic coupling of silicon nanocrystals with engineered surface by nanosecond laser processing in liquid media, Vladimir Švrček[1], Davide Mariotti[2], Michio Kondo[1], [1] *National Institute of Advanced Industrial Science and Technology (AIST), Japan,* [2] *Nanotechnology & Advanced Materials Research Institute, University of Ulster, UK*

9:40 `Fr3-O-3` ***Student***

Lasing and motion of zinc oxide nano-crystals by ultraviolet laser irradiation, Kota Okazaki[1], Daisuke Nakamura[1], Mitsuhiro Higashihata[1], Tatsuo Okada[1], [1] *Graduate School of Information Science and Electrical Engineering, Kyushu University, Japan*

10:00 `Fr3-O-4`

Interaction of nanosecond pulse laser with colloidal nanoparticles, Alexander Pyatenko[1], Hongqiang Wang[1], Naoto Koshizaki[1], [1] *AIST, Japan*

10:20 `Fr3-O-5`

Photoluminescence dynamics in exciton-plasmon coupling observed in a novel multilayer heterostructure, Richard F. Haglund[1,2], Benjamin J. Lawrie[2], Richard Mu[3], Kyeong Won Kim[4], David P. Norton[4], [1] *Vanderbilt University, Department of Physics and Astronomy, USA,* [2] *Vanderbilt University, Interdisciplinary Graduate Program in Materials Science, USA,* [3] *Fisk University, Department of Physics, USA,* [4] *University of Florida, Department of Materials Science and Engineering, USA*

10:40 Coffee Break

Day 4
Friday
June 10
11:00

Room 1

Session 24.
Ultrafast Laser Processing: Advanced Processing

Chair: S. Juodkazis

11:00 Fr1-O-6
Generation of sharp and periodic structure by interfering femtosecond laser processing, Yoshiki Nakata[1], Kazuma Momoo[1], Noriaki Miyanaga[1], Takuya Hiromoto[2], [1]*Institute of Laser Engineering, Osaka Univ., Japan,* [2]*Furukawa Electric, Japan*

11:20 Fr1-O-7
Ultra-fast writing of self-organized bubble networks using femtosecond laser exposure in the cumulative regime, Yves Bellouard[1], Max-Olivier Hongler[2], [1]*Eindhoven University of Technology (TU/e), Netherlands,* [2]*Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland*

11:40 Fr1-I-8 ***Invited***
Fs laser cleaning using filamentation, Sung-Hak Cho[1], Jung-Kyu Park[1], Jae-Yong Yu[1], Won-Seok Chang[1], Jae-Goo Kim[1], Ji-Yeon Choi[1], Kyung-Hyun Whang[1], [1]*Nano Machining Lab. KIMM (Korea Institute of Machinery and Materials), Korea*

12:10 Lunch Time

Room 2

Session 26. SP3
Nanomaterials and Nanostructures: Synthesis of Nanomaterials

Chair: S. Maruo

11:00 Fr2-UO-4 ***Student*** *PPT*

New method for micro and nanoparticles fabrication, Cinthya Emma Toro[1], Carlos Alberto Rinaldi[2], Edgardo Domingo Cabanillas[3], [1]*Dept. of Micro and Nanotechnology, National Commission of Atomic Energy, Argentina,* [2]*National Council of Scientific and Technical Research, Argentina,* [3]*CONICET and Dept. of Nuclear Combustible, CNEA, Buenos Aires, Argentina*

11:15 Fr2-O-5

Carbon-assisted fabrication of sub micrometer spheres for low optical absorbance materials by laser selective heating in liquid, Xiangyou Li[1], Hongqiang Wang[1], Alexander Pyatenko[1], Naoto Koshizaki[1], [1]*National Institute of Advanced Industrial Science and Technology (AIST), Japan*

11:35 Fr2-O-6

Fabrication of submicrometer spherical particles by pulsed laser melting in liquid under low fluence conditions, Naoto Koshizaki[1], Hongqiang Wang[1], Yoshie Ishikawa[2], [1]*National Institute of Advanced Industrial Science and Technology (AIST), Japan,* [2]*Kagawa University, Japan*

11:55 Fr2-O-7 ***Student***

Femtosecond laser-induced size reduction of aqueous gold nanoparticles: In situ- and pump-probe spectroscopy investigation to reveal Coulomb explosion, Daniel Werner[1], Akihiro Furube[2], Shuichi Hashimoto[1], [1]*Department of Ecosystem Engineering, The University of Tokushima, Japan,* [2]*National Institute of Advanced Industrial Science and Technology (AIST), Japan,* [3]*Department of Ecosystem Engineering, The University of Tokushima, Japan*

12:15 Lunch Time

Room 3

Session 28.
Glass Welding

Chair: W. Watanabe

11:00 Fr3-O-6

Efficient microwelding of glass by double pulse irradiation of ultrafast laser beam, Koji Sugioka[1], Makoto Iida[1], Hiroshi Takai[2], Katsumi Midorikawa[1], [1]*RIKEN – ASI, Japan,* [2]*Tokyo Denki University, Japan*

11:20 Fr3-O-7

Shear measurements of joining seams in glass welded by ultra-fast lasers depending on focus height, Kristian Cvecek[1], Isamu Miyamoto[2], Matthias Rascher[1], Thomas Frick[1], Michael Schmidt[3], [1]*Bayerisches Laserzentrum, Germany,* [2]*Osaka University, Japan,* [3]*Chair of Photonics Technologies, University Erlangen-Nuremberg, Germany*

11:40 Fr3-O-8

Fusion welding characteristics of FOTURAN glass using ultrashort laser pulses, Isamu Miyamoto[1,2], Kristian Cvecek[3], Yashuhiro Okamoto[4], Michael Schmidt[2,3,5], Henry Helvajian[6], [1]*Osaka University, Japan,* [2]*Erlangen Graduate School of Advanced Optical Technologies (SAOT), Germany,* [3]*Bayerisches Laser Zeutrum, Germany,* [4]*Okayama University, Japan,* [5]*University Erlangen-Nuremberl, Germany,* [6]*The Aero Space Corporation, US*

12:00 Fr3-O-9 ***Student***

Energy-dependence of temperature dynamics in femtosecond laser microprocessing investigated by time-resolved micro-Raman spectroscopy, Tomoki Yoshino[1], Masato Matsumoto[1], Yasuyuki Ozeki[1], Kazuyoshi Itoh[1], [1]*Graduate School of Engineering, Osaka University, Japan*

12:20 Lunch Time

Day 4
Friday
June 10
14:00

Room 1

Session 29.
Industrial Applications

Chair: K. Itoh

14:00 Fr1-I-9 ***Invited***

Technology innovation of thin film transistors (TFTs) by laser crystallization processing, Yoshitaka Yamamoto, [1]*Sharp Corporation*

14:30 Fr1-I-10 ***Invited***

Stealth dicing technology and the trend, Junji Okuma[1], [1]*Hamamatsu Photonics K.K., Japan*

Room 1

Closing

15:00 **Outstanding Awards**

Closing Remark

15:30 *close*

Poster Session

Poster 1 Wednesday, June 8

11:20 Short Presentation 1 for Poster Session 1 *Room 1*

12:20 Poster Session 1 and Exhibition *Small Hall 2 (5F)*

Fundamentals and Photochemistry

We-P-1

Plasma emission from glass/liquid interface for real-time monitoring of LIBWE process, Ji-Yen Cheng[1,2,3], Seyedehmansoureh Zarei Mousavi[1,4,5], Chun-Ying Wu[1,2], Hsieh-Fu Tsai[1,3], [1]*Research Center for Applied Sciences, Academia Sinica Taiwan, Taiwan,* [2]*Department of Mechanical and Mechantronic Engineering, National Taiwan Ocean University, Taiwan,* [3]*Institute of Biophotonics, National Yang-Ming University, Taiwan,* [4]*Department of Chemistry, National Taiwan University, Taiwan,* [5]*Nano Science and Technology Program, Taiwan International Graduate Program, Academia Sinica Taiwan, Taiwan*

We-P-2

Decrease in minority carrier lifetime caused by rapid laser heating, Toshiyuki Sameshima[1], Wataru Kato[1], Yasu Kanda[1], Shinya Yoshidomi[1], Masahiko Hasumi[1], Naoki Sano[2], [1]*Tokyo University of Agriculture and Technology, Japan,* [2]*Aurea Works Corporation, Japan*

We-P-3

Laser induced formation of buried void layer in silicon, Toshiyuki Sameshima[1], Yasu Kanda[1], Masahiko Hasumi[1], Junichi Tatemichi[2], Yutaka Inouchi[2], Masao Naito[2], [1]*Tokyo University of Agriculture and Technology, Japan,* [2]*Nissin Ion Equipment Co.,Ltd, Japan*

We-P-4 ***Student***

Surface modification of silicone-coated polycarbonate by F_2 laser for lightweight window, Yoshihiko Nojima[1,2], Masayuki Okoshi[1], Hidetoshi Nojiri[2], Narumi Inoue[1], [1]*National Defense Academy, Japan,* [2]*RENIAS Co.,Ltd., Japan*

We-UP-5 ***Student*** *No Attendant*

Detecting plasma produced by laser in a micromachining system as in-process control, Cinthya Emma Toro[1], Carlos Lasorsa[2], Carlos Alberto Rinaldi[3], [1]*Dept. of Micro and Nanotechnology, National Commission of Atomic Energy, Argentina,* [2]*Universidad Tecnológica Nacional, Facultad Regional Haedo, Buenos Aires, Argentina,* [3]*National Council of Scientific and Technical Research, Argentina*

Direct Writing

We-P-6

Driving cholesteric liquid crystal display by pulsed laser, Hsuan-Kai Lin[1], Heng-Yin Chen[1], Chao-Chiun Liang[1], Ju-Yuen Su[1], Da-Long Cheng[2], Yu-Chen Chang[3], [1]*Industrial Technology Research Institute, Taiwan,* [2]*Department of Computer and Communication, SHU-TE University, Taiwan,* [3]*Department of Materials and Optoelectronic Science; Center for Nanoscience and Nanotechnology, National Sun Yat-Sen University, Taiwan*

We-P-7

Reversible writing of photorefractive structures in lithium niobate by laser lithography, Vygantas Mizeikis[1], Vytautas Purlys[2], Domas Paipulas[2], Saulius Juodkazis[3], [1]*Division of Global Research Leaders (Research Institute of Electronics), Shizuoka University, Japan,* [2]*Laser Research Center, Department of Quantum Electronics, Vilnius University, Lithuania,* [3]*Centre for Micro-Photonics, Swinburne University of Technology, Australia*

We-P-8

Study on the mechanism of creating electroless plating seed on polymer by laser, Byoung Man Paik[1], Jae Hoon Lee[1], Dong Sig Shin[1], Kun Sang Lee[2], [1]*Korea Institute of Machinery & Materials, Korea,* [2]*Kookmin University, Korea*

We-P-9

Laser induced graphite oxide/graphene transformation, Romualdas Trusovas[1], Gediminas Račiukaitis[1], Jurgis Barkauskas[2], Regina Mazeikiene[3], [1]*Center for Physical Sciences and Technology, Lithuania,* [2]*Faculty of Chemistry, Vilnius University, Lithuania,* [3]*Institute of Chemistry, Center for Physical Sciences and Technology, Lithuania*

We-P-10

Position restricted growth of carbon nanotube and carbon nanofiber with laser processed catalytic metal by thermal decomposition in ethanol, Satoshi Kurumi[1], Daisuke Miura[1], Hiroaki Iwato[1], Kazuhiro Namiki[1], Kaoru Suzuki[1], [1]*Nihon University, Japan*

Ultrafast Laser Processing

We-P-11

Comparison between plasma properties and damage thresholds in doped silica exposed to IR femtosecond laser, Matthieu Lancry[1], Bertrand Poumellec[1], Stéphane Guizard[2], Nikita Fedorov[2], [1]*University of Paris Sud 11, France,* [2]*Laboratoire des Solides Irradiés/CEA IRAMIS, Ecole Polytechnique, Palaiseau, France*

We-P-12 ***Student***

Grain size dependence of surface hardness in femtosecond laser-peened steels, Miho Tsuyama[1], Satoshi Yamatani[1], Shota Fujii[1], Toshiya Shibayanagi[2], Masahiro Tsukamoto[2], Nobuyuki Abe[2], Hitoshi Nakano[1], [1]*Program in Electronic Engineering, Interdisciplinary Graduate School of Science and Engineering, Kinki University, Japan,* [2]*Joining and Welding Research Institute, Osaka University, Japan*

We-P-13 ***Student***

Electrical couduction properties of SiC modified by femtosecond laser, Takuto Ito[1], Manato Deki[1], Takuro Tomita[1], Shigeki Matsuo[1], Shuichi Hashimoto[1], Takahiro Kitada[2], Toshiro Isu[2], Shinobu Onoda[3], Takeshi Ohshima[3], [1]*Department of Ecosystem Engineering, The University of Tokushima, Japan,* [2]*Center of Frontier Research of Engineering, The University of Tokushima, Japan,* [3]*Japan Atomic Energy Agency, Japan*

We-P-14 ***Student***

Exact evaluation of joint force in ultrafast microwelding without the influence of contacting area, Yuto Oki[1], Yasuyuki Ozeki[1], Kazuyoshi Itoh[1], [1]*Department of Material and Life Science, Graduate School of Engineering, Osaka University, Japan*

We-P-15 ***Student***

Time-resolved quantitative observation of phenomena induced by tightly-focused femtosecond laser pulse in glass, Keisuke Iwata[1], Akihiro Takita[1], Yoshio Hayasaki[1], [1]*Center for Optical Science and Education (CORE), Utsunomiya University, Japan*

We-P-16

Fabrication of nanostructures on SKD11 metal by femtosecond laser, C. Y. Lin[1], K. P. Chang[1], P. H. Wu[1], C. W. Cheng[1], S. M. Huang[2], [1]*ITRI South, Industrial Technology Research Institute, Taiwan, R.O.C.,* [2]*Central Mint, Taiwan, R.O.C.*

We-P-17

Development of structural health monitoring sensors by optical fiber Bragg grating, Yukihiro Shimada[1], Akihiko Nishimura[1], [1]*Applied Laser Technology Institute at Tsuruga Head Office, Japan Atomic Energy Agency, Japan*

We-P-18 ***Student***

Fabrication of micro-fluidic channel and waveguide in fused silica using femtosecond laser, Dae-Young Lee[1], A-Young Moon[1], Woon-Young Lee[1], Ki-Soo Lim[1], [1]*Chungbuk National University, R. O. Korea*

We-P-19 ***Student***

Surface control of transparent materials for hydrophobicity using femtosecond laser micro-fabrication, Woon-Young Lee[1], Dae-Young Lee[1], A-Young Moon[1], Ki-Soo Lim[1], [1]*Chungbuk National University, R. O. Korea*

We-P-20

Nanostructuring of silicon surface with femtosecond-laser-induced near-field, Godai Miyaji[1], Kaifeng Zhang[1], Junji Fujita[1], Kenzo Miyazaki[1], [1]*Kyoto University, Institute of Advanced Energy, Japan*

We-P-21

Non-linear absorption of 1.3 μm wavelength femtosecond laser pulses focused inside semiconductors: FDTD-TTM joint computational study, Ilya Bogatyrev[1], David Grojo[1], Tatiana Itina[2], Philippe Delaporte[1], Marc Sentis[1], Wladimir Marin[3], [1]*Lasers, Plasmas et Procédés Photoniques UMR 6182 CNRS, France,* [2]*Laboratoire Hubert Curien UMR 5516 CNRS, France,* [3]*Centre Interdisciplinaire de Nanoscience de Marseille, France*

We-P-22

Fabrication of diffractive optical elements in polymers by 400-nm femtosecond laser pulses, Wataru Watanabe[1], Katsumi Matsuda[2], Satoshi Hirono[2], Hiroyuki Mochizuki[1], [1]*Photonics Research Institute, National Institute of Advanced Industrial Science and Technology, Japan,* [2]*Production Method Development Group, Omron Corporation, Japan*

We-P-23

Writing speed dependency of femtosecond laser refractive index modification in poly(dimethysiloxane), Wataru Watanabe[1], Katsumi Matsuda[2], Satoshi Hirono[2], Hiroyuki Mochizuki[1], [1]*Photonics Research Institute, National Institute of Advanced Industrial Science and Technology, Japan,* [2]*Production Method Development Group, Omron Corporation, Japan*

We-P-24

Femtosecond laser-driven shock hardening of aluminum, Tomokazu Sano[1,2], Yutaro Isshiki[1], Tomo Ogura[1], Masayuki Okoshi[3], Narumi Inoue[3], Kojiro F. Kobayashi[4], Akio Hirose[1], [1]*Division of Materials and Manufacturing Science, Graduate School of Engineering, Osaka University, Japan,* [2]*JST, CREST, Japan,* [3]*National Defense Academy of Japan, Japan,* [4]*The Wakasa Wan Energy Research Center, Japan*

We-P-25 ***Student***

Hardening of iron using femtosecond and sub-nanosecond laser pulses, Tomoki Matsuda[1], Tomokazu Sano[1,2], Tomo Ogura[1], Kojiro F Kobayashi[3], Akio Hirose[1], [1]*Division of Materials and Manufacturing Science, Graduate School of Engineering, Osaka University, Japan,* [2]*JST, CREST, Japan,* [3]*The Wakasa Wan Energy Research Center, Japan*

Advanced Laser Processing

We-P-26

Numerical simulation of the melt pool character in high power fiber laser welding, Ruihua Zhang[1], Zhipen Cai[1], Jiluan Pan[1], Seiji Katayama[2], Yan Zhang[3], Fang Zhao[3], Xiao Wang[3], [1]*Tsinghua University, China,* [2]*Joining and Welding Research Institute, Osaka University, Japan,* [3]*China Iron & Steel Research Institute Group, China*

We-P-27

High-power fibre laser cleaning for green shipbuilding, Guoxin Chen[1], Tiao Joo Kwee[1], Kim Pong Tan[1], Yoo Sang Choo[2], Minghui Hong[2], [1]*Centre of Innovation (Marine & Offshore Technology), Ngee Ann Polytechnic, Singapore,* [2]*Faculty of Engineering, National University of Singapore, Singapore*

We-P-28

Surface modifications of metals induced by soft X-ray laser pulse irradiations, Masahiko Ishino[1], Anatoly Faenov[1], Momoko Tanaka[1], Noboru Hasegawa[1], Masaharu Nishikino[1], Satoshi Tamotsu[2], Tatiana Pikuz[1], Toshiyuki Ohba[1], Takeshi Kaihori[1], Tetsuya Kawachi[1], [1]*Quantum Beam Directorate, Japan Atomic Energy Agency, Japan,* [2]*Graduate School of Humanities and Science, Nara Women's University, Japan*

We-P-29

Laser joining of plastic and different plastic with elastomer sheet, Yutaka Mitooka[1], Makoto Hino[1], Teruto Kanadani[2], [1]*Industrial Technology Research Institute of Okayama Prefectural Government, Japan,* [2]*Okayama University of Science, Japan*

We-P-30

Application of photo-stimulated desorption and decomposition process induced by VUV radiations to surface analysis, Masahito Katto[1], Masanori Kaku[2], Shoichi Kubodera[2], Atsushi Yokotani[2], Nobuyoshi Miyabayashi[3], Wataru Sasaki[4], [1]*CRCC and Photon Science Project, University of Miyazaki, Japan,* [2]*Dept. of EEE and Photon Science Project, University of Miyazaki, Japan,* [3]*ESCO, Ltd, Japan,* [4]*NTP, Inc., Japan*

We-P-31 ***Student***

Preparation of size-controlled nanoparticles with narrow size distribution by thin film laser ablation in water, Motishi Fukudome[1], Naoya Fujimoto[2], Hiroshi Ikenoue[1,2], [1]*Advance course of Mechanical and Electrical Engineering, Kochi National College of Technology, Japan,* [2]*Department of Electrical Engineering, Kochi National College of Technology, Japan*

Poster 2 Thursday, June 9

11:20 Short Presentation 2 for Poster Session 2 *Room 1*

12:20 Poster Session 2 and Exhibition *Small Hall 2 (5F)*

Micro-patterning and Micro-machining

Th-P-1 ***Student***

UV laser drilling of glassy carbon die for microneedle array, Wataru Okazaki[1], Yoshikazu Yoshida[1,2], Takashi Uchida[2], [1]*Graduate school of Engineering, Toyo University, Japan,* [2]*Bio-Nano Electronics Research Centre, Toyo University, Japan*

Th-P-2 ***Student***

Laser cutting of flexible printed circuit boards in liquid, Teakgu Kim[1], Wooram Lee[1], Chulku Lee[1], Joohan Kim[1], [1]*Seoul National University of Science and Technology, Korea*

Th-P-3

Laser micromachining in Mg-Cu-Gd bulk metallic glass by pulsed lasers, Hsuan-Kai Lin[1], Ching-Jen Lee[2], Ting-Ting Hu[2], Chun-Han Li[1], Chih-Ching Jacob Huang[2], [1]*Industrial Technology Research Institute, Taiwan,* [2]*Department of Materials and Optoelectronic Science, National Sun Yat-Sen University, Taiwan*

Th-P-4 ***Student***

The effect of a laser beam wavelength on micro grooving of aluminum nitride, Tatsuhiro Mori[1], Takuhito Otofuji[1], Shinri Nonaka[1], Yasuyuki Takata[1], Masamichi Kohno[1], [1]*Kyushu University, Japan*

Th-P-5

Laser drilling of Ni film on silicon for μ-SOFC, Mindaugas Maciulevičius[1], Mindaugas Gedvilas[1], Brigita Abakevičienė[2], Sigitas Tamulevičius[2], Gediminas Račiukaitis[1], [1]*Center for Physical Sciences and Technology, Lithuania,* [2]*Institute of Material science, Kaunas University of Technology, Lithuania*

Th-UP-6 ***Student*** *No Attendant*

A new combined method to make microcavities in Si(100), Cinthya Emma Toro[1], Betiana Lerner[1], Maximiliano Perez[1], Carlos Lasorsa[2], Carlos Alberto Rinaldi[3], Alfredo Boselli[1], Carlos Lamagna[1], [1]*Dept. of Micro and Nanotechnology, National Commission of Atomic Energy, Argentina,* [2]*Universidad Tecnológica Nacional, Facultad Regional Haedo, Buenos Aires, Argentina,* [3]*National Council of Scientific and Technical Research, Argentina*

Th-P-7 ***Student***

An application and effects of aligned ultrasonic vibration for high precision in nanosecond laser machining, Gun Woo Kim[1], Bong Chul Kang[1], Sung Hak Cho[2], Jong Kweon Park[2], Min Yang Yang[1], [1]*Department of Mechanical Engineering, Korea Advanced Institute of Science and Technology (KAIST), Republic of Korea,* [2]*Division of Nano-Mechanical Systems, Korea Institute of Machinery and Materials (KIMM), Republic of Korea*

Th-P-8 ***Student***

Micro-channel formation for solid oxide fuel cells using laser beam interference ablation, Bogdan Voisiat[1], Mindaugas Gedvilas[1], Brigita Abakevičianė[2], Sigitas Tamulevičius[2], Gediminas Račiukaitis[1], [1]*Center for Physical Sciences and Technology, Lithuania,* [2]*Institute of Material science, Kaunas University of Technology, Lithuania*

Th-P-9

Variation in the etch rate of LIBWE fabricating deep microtrenches, Tadatake Sato[1], Yoshizo Kawaguchi[1], Ryozo Kurosaki[1], Aiko Narazaki[1], Wataru Watanabe[1], Hiroyuki Niino[1], [1]*National Institute of Advanced Industrial Science and Technology (AIST), Japan*

Th-UP-10 *No Attendant*

Magnetic assisted laser micromachining for highly reflective metals, Chia-Lung Kuo[1], Yuan-Jen Chang[1], Nai-Yu Wang[1], [1]*National Yunlin University of Science and Technology, Taiwan*

Manufacture of Micro Devices and Systems

Th-P-11

Fabrication of transparent and conductive microchips, Szabolcs Beke[1], Jian Xu[1], László Kőrösi[2], Koji Sugioka[1], Katsumi Midorikawa[1], [1]*Laser Technology Laboratory, RIKEN — Advanced Science Institute, Japan,* [2]*Supramolecular and Nanostructured Materials Research Group of the Hungarian Academy of Sciences, University of Szeged, Hungary*

Th-P-12

The effect of sensing area and fiber lens on sensitivity for the side-polished plastic optical fiber sensor, Yi-Cheng Hsu[1], Hung-Chung Liu[1], Chih-De Hu[1], Jhih-Lin Chen[1], [1]*Department of Biomechatronics Engineering National Pingtung University of Science and Technology, Taiwan*

Th-P-13

The detection of raw milk doping constituted milk employing side-polished plastic fiber sensor, Yi-Cheng Hsu[1], Hung-Chung Liu[1], Jhih-Lin Chen[1], Mei-Jen Lin[2], Guai-Yu Chen[2], [1]*Department of Biomechatronics Engineering National Pingtung University of Science and Technology, Taiwan,* [2]*Department of Animal Science National Pingtung University of Science and Technology, Taiwan*

Th-P-14

Laser irradiation on tin electroplating and whisker suppressibility, Makoto Hino[1], Yutaka Mitooka[1], Koji Murakami[1], Masao Takamizawa[2], Teruto Kanadani[3], [1]*Industrial Technology Research Institute of Okayama Prefecture, Japan,* [2]*OM Sangyo Co. LTD., Japan,* [3]*Okayama University of Science, Japan*

Th-P-15

Continuous laser fabrication method using an adaptive cell decomposition, Kwangho Yoon[1], Kyunghan Kim[1], Jaehoon Lee[1], [1]*Korea Institute of Machinery and Materials (KIMM), Korea*

Th-P-16 ***Student***

Guide mode resonance sensor realized by femtosecond laser machining, Chien-Hsing Chen[1], Ting-Chou Chang[2], Chai-Yu Lee[2], Jaw-Luen Tang[1], Shau-Chun Wang[2], Lai-Kwan Chau[2], Wei-Te Wu[3], [1]*Department of Physics, National Chung Cheng University, Taiwan,* [2]*Department of Chemistry and Biochemistry, National Chun Cheng University, Taiwan,* [3]*Department of Biomechatronics Engineering, National Pingtung University of Science and Technology, Taiwan*

Film Deposition

Th-P-17

Development of a laser-assisted chemical vapour deposition system for the growth of carbon nanotubes, Takashi Uchida[1,2], Yoshikazu Yoshida[1,2], [1]*Faculty of Science and Engineering, Toyo University, Japan,* [2]*Bio-Nano Electronics Research Centre, Toyo University, Japan*

Th-P-18 ***Student***

Fabrication of TiO_2 films by electrophoretic deposition, C. Y. Lin[1], D. L. Cheng[1], K. S. Kao[1], C. H. Liang[2], H. K. Lin[3], [1]*Department of Computer and Communication, Shu-Te University, Taiwan,* [2]*Department of Cosmetic Science, Chia Nan University of Pharmacy and Science, Taiwan,* [3]*Laser Application Technology Center/ Industrial Technology Research Institute South (ITRI South), Taiwan*

Lasers, Optics, and Systems

Th-P-19 ***Student***

A new approach to characterizing surface texturing of crystalline silicon wafers for high efficiency solar cells application, Chil-Chyuan Kuo[1], Yi- Ruei Chen[1], [1]*Ming Chi University of Technology, Taiwan*

Th-P-20

Large-area UV microprocessing, Ralph Delmdahl[1], Rainer Paetzel[1], [1]*Coherent GmbH, Germany*

Th-P-21

Fabrication of anti-reflective structures using hot embossing with a stainless steel template fabricated by femtosecond laser, Tsung-Fu Yao[1], Ping-Han Wu[2], Chung-Wei Cheng[2], Tzong-Ming Wu[2], Cheng-Huan Yang[1], Sen-Yen Yang[1], [1]*Department of Mechanical Engineering, National Taiwan University, Taiwan, R.O.C,* [2]*ITRI South, Industrial Technology Research Institute, Taiwan, R.O.C*

Th-P-22

Fringe analysis by envelope detection for measuring ultra-small displacement, Hui-Kang Teng[1], Kuo-Chen Lang[1], [1]*Department of Computer and Communication Engineering, Nan Kai University of Technology, Taiwan, ROC*

Th-P-23

Balanced detection with single photoreceiver, Kuo-Chen Lang[1], Hui-Kang Teng[1], [1]*Department of Computer and Communication ngineering, Nan Kai University of Technology, Taiwan, ROC*

Th-P-24

Characterization of $CsLiB_6O_{10}$ crystals grown in dry atmosphere, Yoshinori Takahashi[1,2], Masashi Yoshimura[1,2], Yusuke Mizobe[1,2], Yohei Shimizu[1,2], Takahiro Kawamura[1,2], Zhiming Lu[1,2], Yuji Fukushima[1,2], Takashi Moritani[1,2], Kazuto Matsuki[3], Susumu Iida[2,3], Shinichi Imai[2,3], Y. Kaneda[1,2,5], Y. Mori[1,2], T. Sasaki[1,2], [1]*Graduate School of Engineering, Osaka University, Japan,* [2]*JST-CREST, Japan,* [3]*Advanced Mask Inspection Technology, Japan,* [4]*Oxide Corporation, Japan,* [5]*College of Optical Sciences, The University of Arizona, USA*

Th-P-25 ***Student***

High performance UV laser drilling using digital scanner, Hyung-Suk Kuh[1], Kwang-Ryul Kim[1], Byoungdeog Choi[1], Hong-Jin Park[2], Won-Ha Heo[3], Sung-Hak Cho[4], [1]*School of Information and Communication Engineering, SungKyunKwan University, Korea,* [2]*LTS, 38-13, Ojeon-dong, Uiwang-si, Gyeonggi-do, Korea,* [3]*Duckyu, 159-12, Gunja-Dong, Siheung-Si, Gyeonggi-do, Korea,* [4]*Korea Institute of Machinery and Materials, Korea*

Th-P-26 ***Student***

High-efficiency second harmonic generation of a mode-locked picosecond Ti:sapphire laser with an external enhancement cavity, Yuma Takida[1], Tatsuya Ohira[1], Shingo Maeda[1], Hiroshi Kumagai[1], [1]*Graduate school of Engineering, Osaka City University, Japan*

Th-P-27 ***Student***

Parametric oscillation of terahertz wave pumped by picosecond Ti:sapphire laser with MgO-doped $LiNbO_3$ installed in external enhancement cavity, Yuma Takida[1], Tatsuya Ohira[1], Shingo Maeda[1], Hiroshi Kumagai[1], Shigeki Nashima[1], [1]*Graduate school of Engineering, Osaka City University, Japan*

Th-P-28 ***Student***

TiO_2/sapphire beam splitter for high-order harmonics, Yasutaka Sanjo[1], Masaki Murata[1], Yuji Tanaka[1], Horoshi Kumagai[1], Masaya Chigane[2], [1]*Graduate School of Engineering, Osaka City University, Japan,* [2]*Osaka Municipal Technical Research Institute, Japan*

Nanomaterials and Nanostructures

Th-P-29 ***Student***

Morphologic phase change of silver nano particle ink obtain by laser sintering, Michael Zenou[1,2], Amir Saar[2], Zvi Kotler[1], [1]*Orbotech Ltd., Israel,* [2]*Hebrew University , Racah Insitute Of Physics, Isarel*

Th-P-30 ***Student***

Spherical titanium oxide particle fabrication by laser melting in liquid, Masayuki Ohira[1], Yoshie Ishikawa[1], Naoto Koshizaki[2], Qi Feng[1], [1]*Department of Advanced Materials Science, Faculty of Engineering, Kagawa University, Japan,* [2]*Nanosystem Research Institute, National Institute of Advanced Industrial Science and Technology (AIST), Japan*

Th-P-31

Large quantity synthesis of boron carbide particles by laser melting in liquid for novel BNCT agent, Yoshie Ishikawa[1], Naoto Koshizaki[2], Qi Feng[1], [1]*Department of Advanced Materials Science, Faculty of Engineering, Kagawa University, Japan,* [2]*Nanosystem Research Institute, National Institute of Advanced Industrial Science and Technology (AIST), Japan*

Th-P-32 ***Student***

Three-dimensional carbon microstructures produced by a soft molding process based on two-photon microfabrication, Yuya Daicho[1,2], Terumasa Murakami[1], Tsuneo Hagiwara[3], Shoji Maruo[1], [1]*Yokohama National University, Japan,* [2]*CMET Inc., Japan,* [3]*Tokyo Institute of Technology, Japan*

Others

Th-P-33

Inhibitory effect of Ov-16 (4-(3,4-dihydroxybenzoyloxymethyl) phenyl-O-β-D-glucopyranoside) on melanin synthesis: Potential role for tyrosinase signaling, Leong-Perng Chan[1], Shih-Hao Wang[2], Jing-Yao Liang[3,4,5], Da-Long Cheng[6], Chia-Hua Liang[3], [1]*Department of Otolaryngology-Head and Neck Surgery, Kaohsiung Medical University, Chung-Ho Memorial Hospital, Kaohsiung Medical University, Taiwan,* [2]*Graduate Institute of Pharmaceutical Chemistry, China Medical University, Taiwan,* [3]*Department of Cosmetic Science, Chia Nan University of Pharmacy and Science, Taiwan,* [4]*Department of Urology, Kuo General Hospital, Taiwan,* [5]*Institute of Biomedical Engineering, National Cheng Kung University, Taiwan,* [6]*Department of Computer and Communication, SHU-TE University, Taiwan*

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