LAMP2019

The 8th International Congress on Laser Advanced Materials Processing
LPM2019 — The 20th International Symposium on Laser Precision Microfabrication
HPL2019 — The 8th International Symposium on High Power Laser Processing

May 21 – 24, 2019

Hiroshima, Japan

http://www.jlps.gr.jp/lamp/lamp2019/

LAMP2019 Tentative Program

updated May 9, 2019

General Chair	Koji Sugioka	*RIKEN, Japan*
Co-Chairs	Hiroyuki Niino	*AIST, Japan*
	Seiji Katayama	*Emeritus Prof., Osaka University, Japan, NADEX Co. Ltd., Japan*
	Takashi Ishide	*Mitsubishi Heavy Industries Ltd., Japan; JLPS President*
	Yongfeng Lu	*University of Nebrasska-Lincoln, USA*
	Michael Schmidt	*Friedrich-Alexander-Universität Erlangen-Nürnberg, Germany*
Steering Committee Chair	Kenji Shinozaki	*Hiroshima University, Japan*

Program

Oral Session

Day 1: May 21, Tuesday

Hall "Himawari"

Opening

Chair: Koji Sugioka, RIKEN, Japan: General Chair of LAMP2019

10:00 Opening Remark

Hall "Himawari"

Plenary Session

Chair: Seiji Katayama, Emeritus Prof., Osaka University, Japan; NADEX Co. Ltd., Japan

10:10 TuM-1 ***Plenary*** A120290

Q-LEAP STELLA and related japanese national projects for smart laser manufacturing, Kenichi L. Ishikawa[1], [1]*Research Institute for Photon Science and Laser Technology, The University of Tokyo, Japan*

10:50 TuM-2 ***Plenary*** A121930

Localized source and sink systems of photons in nanometric region and their applications for devices and fabrications, Tadashi Kawazoe[1], [1]*Institute of Advanced Laser technology, Tokyo Denki University, Japan*

11:30 TuM-3 ***Plenary*** A121149

Digital photonic production for a better future of the global society, Reinhart Poprawe[1], Arnold Gillner[1], Dieter Hoffmann[1], Reinhard Noll[1], Henrich Schleifenbaum[1], [1]*Fraunhofer ILT Aachen, Germany*

12:10 *Lunch Time*

Session 1. ***Hall "Himawari"***

LPM: LPM 20th Year Anniversary Session

Chair: Koji Sugioka, RIKEN, Japan: General Chair of LAMP2019

13:30 TuM-L4 A122860

Introductory talk: History of LPM, Koji Sugioka[1], [1]*Center for Advanced Photonics, RIKEN, Japan*

13:40 TuM-L5 **Invited** A120508

Advances of glass welding and its future prospect - science and technology, Isamu Miyamoto[1,2], Kristian Cvecek[2,3], Michael Schmidt[2,3,4], [1]*Osaka University, Japan,* [2]*Erlangen Graduate School of Advanced Optical Technologies (SAOT), Germany,* [3]*Friedrich-Alexander-University Erlangen Nuremberg, Germany,* [4]*Bayerisches Laserzentrum, Germany*

14:10 TuM-L6 **Invited** A120606

Laser Precision Microfabrication (LPM): 20 years of controlled material forming, process diagnostics and physical conversion, Henry Helvajian[1], [1]*Physical Sciences Laboratories, The Aerospace Corporation, USA*

14:40 TuM-L7 **Invited** A121523

Review on laser structuring - from micrometer to nanometer precision within 20 years, Andreas Ostendorf[1], [1]*Applied Laser Technologies, Ruhr University Bochum, Germany*

15:10 Coffee Break

Session 5. ***Room 4***

HPL 1: Simulation & Fundamentals

Chair: Toshiharu Muramatsu, JAEA, Japan

13:30 Tu5-H1 **Invited** A121749

Fluid dynamical defect mechanisms in laser beam welding, Andreas Otto[1], Rodrigo Gómez Vázquez[1], [1]*Institute of Production Engineering and Photonic Technologies, TU Wien, Austria*

14:00 Tu5-H2 A120213

Influences of surface pretreatments on absorptivity changes induced by laser beam processing, Helge Kügler[1], Frank Vollertsen[1, 2], [1]*BIAS - Bremer Institut für angewandte Strahltechnik GmbH, Germany,* [2]*University of Bremen, Germany*

14:20 Tu5-H3 A120067

Thermal effect to photopolymerization process, Evaldas Stankevicius[1], Zygimantas Prielaidas[1], Gediminas Raciukaitis[1], [1]*FTMC, Lithuania*

14:40 Tu5-H4 **Student** A121995

Short wavelength pyrometry by photon counting/application for temperature measurement in laser oxygen cutting, Abbas Hamie[1], Matthieu Schneider[1], Nicolas Ranc[1], [1]*PIMM labortory , Paris, France*

15:00 Coffee Break

Day 1: May 21, Tuesday

Session 2. ***Hall "Himawari"***

LPM: SP1-1 "Laser synthesis and processing in liquids"

Chairs: Tsuyoshi Asahi, Ehime University, Japan; Stephan Barcikowski, University of Duisburg-Essen, Germany

15:30 TuM-L8 ***Invited*** A120272

Chances of pulsed laser irradiation of colloidal nanoparticles for optoelectronic applications, Hongqiang Wang[1], [1]*State Key Laboratory of Solidification Processing, Center for Nano Energy Materials, School of Materials Science and Engineering, Northwestern Polytechnical University and Shaanxi Joint Labortary of Graphene, Xi'an, China*

16:00 TuM-L9 ***Student*** A120287

Fe_3O_4/Fe_2O_3 composite sphere-particles prepared by ns laser irradiation to α-Fe_2O_3 powder in water, Ryo Kihara[1], Akari Shigetaka[1], Tsubasa Isshiki[1], Hiroyoki Wada[2], Saeki Yamamuro[1], Tsuyoshi Asahi[1], [1]*Graduate School of Science and Engineering, Ehime University, 3 Bunkyo, Matsuyama, Ehime, Japan,* [2]*Department of Chemical Science and Engineering School of Materials and Chemical Technology, Tokyo Institute of Technology, 4259 Nagatsuta, Midori, Yokohama, Japan*

16:20 TuM-L10 A120224

Tailoring of magnetic properties of composite particles fabricated by pulsed laser irradiation, Zaneta Swiatkowska-Warkocka[1], Tatiana Itina[2], Alexander Pyatenko[3], Naoto Koshizaki[4], Marta Wolny-Marszalek[1], [1]*Institute of Nuclear Physics, Krakow, Poland,* [2]*Laboratoire Hubert Curien, Saint-Etienne, France,* [3]*National Institute of Advanced Industrial Science and Technology, Tsukuba, Japan,* [4]*Hokkaido University, Sapporo, Japan*

16:40 TuM-L11 A120966

Femtosecond laser-induced assembly of nanomaterials based on multi-photon reduction, Hiroaki Nishiyama[1], Yuya Ogawa[1], Kaito Kimura[1], Kan Umetsu[1], [1]*Yamagata University, Japan*

17:00 close

Session 3. ***Room 2***

LPM: 3D Micro- and nano-fabrication 1

Chair: Henry Helvajian, The Aerospace Corporation, USA

15:30 Tu2-L1 A120915

3D microfluidic biochips for cancer cell migration in nanometer-sized spaces fabricated by femtosecond laser processing, Felix Sima[1,4], Hiroyuki Kawano[2], Atsushi Miyawaki[2], Lorand Kelemen[3], Pal Ormos[3], Dong Wu[1], Jian Xu[1], Katsumi Midorikawa[1], Koji Sugioka[1], [1]*RIKEN Center for Advanced Photonics, Japan,* [2]*BSI, RIKEN, Japan,* [3]*BRC, Institute of Biophysics, Hungarian Academy of Sciences, Szeged, Hungary,* [4]*CETAL, National Institute for Lasers, Plasma and Radiation Physics, Magurele, Ilfov, Romania*

15:50 Tu2-L2 A120336

Highly sensitive 3D microfluidic SERS chips fabricated by all-femtosecond-laser-processing for real-time sensing, Shi Bai[1], Anming Hu[2], Koji Sugioka, [1]*Advanced Laser Processing Research Team, RIKEN Center for Advanced Photonics, RIKEN,, Saitama, Japan,* [2]*Department of Mechanical Aerospace and Biomedical Engineering, University of Tennessee Knoxville, USA*

16:10 Tu2-L3 ***Invited*** A122488

Femtosecond laser microfabrication for 3D microoptical devices and biomimetic microstructures, Dong Wu[1], Chaowei Wang[1], Yanlei Hu[1], Jiawen Li[1], [1]*Micro/Nano Engineering Laboratory, University of Science and Technology of China, Hefei, China*

16:40 Tu2-L4 ***Student*** A120896

Three-dimensional micro-printing in glass with picosecond laser pulses: Overcoming the degradation in the axial resolution with low numerical aperture focal systems, Peng Wang[1], Wei Chu[1], Ya Cheng[1 2 3], [1]*State Key Laboratory of High Field Laser Physics, Shanghai Institute of Optics and Fine Mechanics, Chinese Academy of Sciences, China.,* [2]*State Key Laboratory of Precision Spectroscopy, School of Physics & Materials Science, East China Normal University, China,* [3]*XXL–The Extreme Optoelectromechanics Laboratory, East China Normal University, China*

17:00 Tu2-L5 A120916

Picosecond laser 3D processing of foturan glass: Towards fabrication of complex large area microfluidics, Felix Sima[1], Florin Jipa[1], Stefana Iosub[1,2], Cristian Butnaru[1], Emanuel Axente[1], Gabriela Ghiritoiu[2], Livia Elena Sima[2], Koji Sugioka[3], [1]*CETAL, National Institute for Lasers, Plasma and Radiation Physics, Magurele, Ilfov, Romania,* [2]*Institute of Biochemistry of the Romanian Academy, Bucharest, Romania,* [3]*RIKEN, Center for Advanced Photonics, Saitama, Japan*

17:20 close

Session 4. ***Room 3***

LPM: Fundamental aspects

Chair: Daisuke Nakamura, Kyushu University, Japan

15:30 Tu3-L1 ***Student*** A120258

Modeling of laser induced micro-jets generated by liquid confining devices, Hamid Ebrahimi Orimi[1,2], Sivakumar Narayanswamy[2,4], Christos Boutopoulos[1,3], [1]*Centre de Recherche Hôpital Maisonneuve-Rosemont, Canada,* [2]*Department of Mechanical, Industrial and Aerospace Engineering, Concordia University, Canada,* [3]*Department of Ophthalmology, Faculty of Medicine, University of Montreal, Canada,* [4]*Department of Mechanical Engineering, SRM University, India*

15:50 Tu3-L2 ***Student*** A120197

Numerical analysis about flow characteristics of interaction between fume particles and protective gas in low vacuum laser welding system, Yongki Lee[1,2], Jason Cheon[1], Byung-kwon Min[2], Cheolhee Kim[1], [1]*Korea Institute of Industrial Technology, South Korea,* [2]*Yonsei University, South Korea*

16:10 Tu3-L3 A120140

Two-fluid model to simulate metal powder bed fusion additive manufacturing, Noriko Watari[1], Yuzuru Ogura[1], Noriko Yamazaki[1], Toshiya Watanabe[2], [1]*Research & Innovation Center, Mitsubishi Heavy Industries, Ltd., Japan,* [2]*Research & Innovation Center, Mitsubishi Heavy Industries, Ltd., Japan*

16:30 Tu3-L4 ***Student*** A120271

Measurement of gas flow rates using laser-induced breakdown spectroscopy, Sangwoo Yoon[1], Joohan Kim[1], [1]*Seoul National University of Science and Technology, Seoul, Korea.*

16:50 Tu3-L5 A120266

Laser-induced ejection of millimeter-sized liquid droplet from metal surface with ns-lasers at two different pulse duration, H. Niino[1], T. Sakai[2], S. Ookuma[2], N. Okada[2], Y. Kato[3], T. Kurita[3], T. Kawashima[3], [1]*RISC, National Institute of Advanced Industrial Science and Technology (AIST), Japan,* [2]*Corporate Manufacturing Engineering Center, Toshiba Corp, Japan,* [3]*Industrial Development Center, Hamamatsu Photonics K. K., Japan*

17:10 *close*

Session 6. ***Room 4***

HPL 2: Additive Manufacturing 1

Chair: Yoshinobu Makino, Toshiba Energy Systems & Solutions Corporation, Japan

15:30 Tu6-H5 ***Invited*** A121303

3D printing of multiple materials and functionally graded components using modified selective laser melting, Lin Li[1], Chao Wei[1], Xiaoji Zhang[1], Yuan-Hui Chueh[1], [1]*Laser Processing Resaerch Centre, School of Mechanical, Aerospace and Civil Engineering, The University of Manchester, UK*

16:00 Tu6-H6 A121470

Latest AM technology and solutions for real applications, Takashi Ishide[1], [1]*Executive Expert, Mitsubishi Heavy Industries, Ltd., Japan*

16:20 Tu6-H7 A120250

Optimizing of gas atomize conditions to produce metal powder for additive manufacturing, Taketoshi Yamada[1], Toshihumi Aoyama[1], Yuji Soda[1], Masahiro Nakamura[2], Masaya Hatanaka[3], Yoshinao Komatsu[3], [1]*Mitsubishi Steel mfg. Co.,Ltd, Japan,* [2]*Mitsubishi Heavy Industries, Ltd., Nagoya, Japan,* [3]*Mitsubishi Heavy Industries, Ltd., Hyogo, Japan*

16:40 Tu6-H8 A120913

Development of additive manufacturing technology for gas turbine components, Shuji Tanigawa[1], Shuho Tsubota[1], Masato Kataoka[2], Takanao Komaki[2], [1]*Mitsubishi Heavy Industries, Japan,* [2]*Mitsubishi Hitachi Power Systems, Japan*

17:00 Tu6-H9 A122861

Recent advances in additive manufacturing at GE, Thomas Pang[1], [1]*GE Additive, Japan*

17:20 *close*

Day 2: May 22, Wednesday

Session 7. ***Room 1***

LPM: SP1-2 "Laser synthesis and processing in liquids"

Chairs: Tsuyoshi Asahi, Ehime University, Japan; Stephan Barcikowski, University of Duisburg-Essen, Germany

9:00 We1-L1 A120014

Alloy nanoparticles by laser ablation in liquids-high material variety for fundamental studies and applications in biomedicine, Christoph Rehbock[1], Stephan Barcikowski[1], [1]*University of Duisburg-Essen, Technical Chemistry I, Essen, Germany*

9:20 We1-L2 A120217

Synthesis of Fe@FeOx particles by laser ablation and their phase transition induced by laser irradiation, Dongshi Zhang[1], Koji Sugioka[1], [1]*Center for Advanced Photonics,, RIKEN, Wako, Saitama, Japan*

9:40 We1-L3 ***Student*** A120093

Transfer processes of thermal energy in high-repetition-rate, ultrashort-pulsed laser synthesis of colloids, Friedrich Waag[1], Bilal Gökce[1], Stephan Barcikowski[1], [1]*Technical Chemistry I, University of Duisburg-Essen, Germany*

10:00 *Coffee Break*

Session 10. ***Room 2***

LPM: Surface treatment 1

Chair: Dong Wu, USTC-the University of Science and Technology of China, China

8:50 We2-L1 ***Invited*** A120230

Laser processing of self-assembled plasmonic metasurfaces, Nicholas A. Charipar[1], Heungsoo Kim[1], Jeffrey Geldmeier[2], Scott A. Trammell[2], Kristin M. Charipar[1], Jawad Naciri[2], Alberto Piqué[1], Jake Fontana[2], [1]*Naval Research Laboratory, Materials Science & Technology Division, USA*, [2]*Naval Research Laboratory, Center for Biomolecular Science & Engineering, USA*

9:20 We2-L2 ***Student*** A120298

Ultrafast laser structuring within a process chain - influence of the surface morphology, Andreas Brenner[1], Martin Osbild[1], Johannes Finger[1], [1]*Fraunhofer Institute for Laser Technology, Steinbachstr. 15, Germany, Aachen, 52074*

9:40 We2-L3 A120312

Fabrication of optical metasurfaces with UV femtosecond laser pulses, Martynas Beresna[1], Timothy Lee[1], Behrad Gholipour[1], Nikolay I. Zheludev[1], Gilberto Brambilla[1], [1]*Optoelectronics Research Centre, University of Southampton, United Kingdom*

10:00 *Coffee Break*

Short Presentations for Poster Sessions

Room 1

LPM Poster Session

Chair: Yasuhiro Okamoto, Okayama University, Japan

10:20 **Short Presentations for LPM Poster Sessions I and II**

Room 4

HPL Poster Session

Chair: Kiyokazu Mori, The Graduate School for The Creation of New Photonics Industries, Japan

11:30 **Short Presentations for HPL Poster Session**

Conference Management Room (B1 Floor)

Poster Sessions and Exhibition

LPM Poster Session I (For odd-numbered posters)

12:10 **LPM Poster Session I and Exhibition**

& Lunch Time

HPL Poster Session

12:10 **HPL Poster Session and Exhibition**

& Lunch Time

Session 13. *Room 3*

LPM: 3D Micro- and nano-fabrication 2

Chair: Mitsuhiro Terakawa, Keio University, Japan

8:50 We3-L1 A120927

Direct laser writing of chirped photonic crystals for optical field enhancement, Ryosuke Hommura[1], Kestutis Staliunas[2], Vygantas Mizeikis[1], [1]*Research Institute of Electronics, Shizuoka University, Japan,* [2]*Institució Catalana de Recerca i Estudis Avancats (ICREA), Spain*

9:10 We3-L2 A120202

Model-based feature size analysis of pure proteinaceous microstructures fabricated by femtosecond laser direct write, Daniela Serien[1], Koji Sugioka[1], [1]*RIKEN Center for Advanced Photonics, Japan*

9:30 We3-L3 ***Student*** A120307

4Pi multiphoton polymerization for improving axial resolution, Titas Tičkūnas[1,2], Vytautas Purlys[1,2], Roaldas Gadonas[1,2], [1]*Laser Research Center, Vilnius University, Lithuania,* [2]*Femtika Ltd., Lithuania*

9:50 We3-L4 ***Student*** A120899

Characterization of 3D laser exposure patterns in photoresist by photoluminescence quenching, E. Yulianto[1], S. Chatterjee[1], V. Mizeikis[1], [1]*Shizuoka University, Japan*

10:10 *Coffee Break*

Session 16. *Room 4*

HPL 3: Welding 1

Chair: Hiroto Yamaoka, IHI Corporation, Japan

9:00 We4-H1 ***Invited*** A122547

Process strategies in high power laser-beam welding, Peter Berger[1], [1]*Vice Director, IFSW, Germany*

9:30 We4-H2 A120936

Multi spot modules to improve joining processes due to tailored spot geometries, Axel Luft[1], Markus Baumann[1], [1]*Laserline GmbH, Germany*

9:50 We4-H3 A120162

Effect of oxides flux on improvement of bead appearances and on prevention of hot cracking in high power laser welding, Youzou Ashida[1], Ryo Nomura[1], Takahiro Deguchi[1], [1]*NADEX LASER R&D Center, NADEX PRODUCTS Co.,Ltd., Japan*

10:10 We4-H4 A121296

Application of high power laser vacuum welding to rolled clad steel plate production process, Yasuaki Okita[1], Yasushi Kitani[1], Tomoaki Fukahori[1], [1]*JFE Steel Corporation, Japan*

10:30 We4-H5 ***Student*** A120950

Development of single-pass vertical welding on heavy-thick steel plate using hot-wire laser welding, Sittisak Charunetratsamee[1], Motomichi Yamamoto[1], Kenji Shinozaki[1], Hiroshi Yajima[2], Naoki Oda[3], Hideki Aono[4], [1]*Graduate School of Engineering, Hiroshima University, Japan,* [2]*Yajima Material Integrity Laboratory, Japan,* [3]*Nippon Steel & Sumitomo Metal Corporation, Japan,* [4]*Matsumoto Kikai Co., Ltd., Japan*

10:50 We4-H6 A120339

Development of laser welding for the ITER toroidal field coil, Takehisa Okuda[1], Yasushi Nishijima[2], Daisuke Hara[2], Shuho Tsubota[1], [1]*Mitsubishi Heavy Industries Ltd., Takasago, Hyogo, Japan,* [2]*Mitsubishi Heavy Industries Ltd., Kobe, Hyogo*

11:10 *Coffee Break*

Short Presentations for Poster Sessions

Room 1

LPM Poster Session

Chair: Yasuhiro Okamoto, Okayama University, Japan

10:20 **Short Presentations for LPM Poster Sessions I and II**

Room 4

HPL Poster Session

Chair: Kiyokazu Mori, The Graduate School for The Creation of New Photonics Industries, Japan

11:30 **Short Presentations for HPL Poster Session**

Conference Management Room (B1 Floor)

Poster Sessions and Exhibition

LPM Poster Session I (For odd-numbered posters)

12:10 **LPM Poster Session I and Exhibition**

& Lunch Time

HPL Poster Session

12:10 **HPL Poster Session and Exhibition**

& Lunch Time

Day 2: May 22, Wednesday

Session 8. ***Room 1***

LPM: SP1-3 "Laser synthesis and processing in liquids"

Chair: Hongqiang Wang, Northwestern Polytechnical University, Xi'an, P. R. China

14:00 We1-L4 ***Invited*** A120138

Synthesis of metal nanoparticles by femtosecond laser-induced plasma in organometallic solution, Tomoyuki Yatsuhashi[1], Yuki Horikawa[1], Takuya Okamoto[1], [1]*Department of Chemistry, Graduate School of Science, Osaka City University, Japan*

14:30 We1-L5 A120234

Kinetics and mechanisms of laser-induced photochemistry in solution, Katharine Moore Tibbetts[1], Mallory G. John[1], Laysa M.,Frias Batista[1], Collin J. Rodrigues[1], [1]*Department of Chemistry, Virginia Commonwealth University, Richmond, VA, USA*

14:50 We1-L6 ***Student*** A120741

Photochemical free laser-induced crystallization of nitrate salts, Yusron Darojat[1], Watheq Al-Basheer[1], Abdulaziz Aljalal[1], Khaled Gasmi[1], [1]*Department of Physics, Saudi Arabia*

15:10 We1-L7 ***Student*** A120238

Kinetic control of gold nanoparticle growth in laser plasma using hydroxyl radical scavengers, Laysa Frias Batista[1], Katharine Moore Tibbetts[1], [1]*Department of Chemistry, Virginia Commonwealth University, USA*

15:30 Coffee Break

Session 11. ***Room 2***

LPM: Advanced laser applications

Chair: Aiko Narazaki, AIST, Japan

14:00 We2-L4 A120716

DUV laser processing of ceramic matrix composites (CMC), Yasuhiro Kamba[1], Ryoichi Nohdomi[1], Taisuke Miura[1], Hiroaki Oizumi[1], Hironori Igarashi[1], Chen Qu[1], Yuki Tamaru[1], Atsushi Fuchimukai[1], Yohei Tanaka[1], Yujiro Sasaki[1], Yoshihiko Murakami[1], Junichi Fujimoto[1], Hakaru Mizoguchi[1], [1]*Gigaphoton Inc., Japan*

14:20 We2-L5 A120146

Trends in high power excimer laser microprocessing, Burkhard Fechner[1], Ralph Delmdahl[1], [1]*Coherent LaserSystems GmbH & Co. KG, Germany*

14:40 We2-L6 A120023

Enabling multi-wavelength lasers interaction with silicon on polyimide toward flexible CMOS-circuits/sensors, Wen-Hsien Huang[1], Ming-Hsuan Kao[1], Hsing-Hsiang Wang[1], Yu Huang[2], Chang-Hong Shen[1], Jia-Min Shieh[1,2], [1]*Taiwan Semiconductor Research Institute (TSRI), National Applied Research Laboratories, HsinChu, Taiwan,* [2]*Department of Photonics and Institute of Electro-Optical Engineering, National Chiao-Tung University, Hsinchu, Taiwan*

15:00 We2-L7 ***Student*** A120866

Laser rapid thermal annealing of biofunctionalized GaAs/AlGaAs nanoheterostructures, Hakim Grib[1], Jan J. Dubowski[1], [1]*Université de Sherbrooke, Canada*

15:20 We2-L8 A120259

Femtosecond laser irradiation aided low-temperature thermal anneal of Ni electrode on SiC, Takuro Tomita[1], Hiroki Kawakami[1], Yoshiki Naoi[1], [1]*Graduate School of Advanced Technology and Science, Tokushima University, Japan*

15:40 Coffee Break

Day 2: May 22, Wednesday

Session 14. ***Room 3***

LPM: Ultrashort pulse laser processing 1

Chair: Yoshiki Nakata, Osaka University, Japan

14:00 We3-L5 ***Student*** A120244

High-quality microfabrication of monocrystalline diamond by picosecond pulsed laser, Atsuya Kajitani[1], Takahiro Simose[1], Yasuhiro Okamoto[1], Togo Sinonaga[1], Akira Okada[1], [1]*Graduate School of Natural Science and Technology, Okayama University, Japan*

14:20 We3-L6 ***Student*** A120510

Regulation of the silver-containing nanocrystals in PTR glass exposed by ultrashort laser pulses, Xu Wang[1], Yunjie Zhang[2], [1]*State Key Laboratory of Transient Optics and Photonics, Xi'an Institute of Optics and Precision Mechanics of CAS,* [2]*School of Science, Xi'an Polytechnic University*

14:40 We3-L7 ***Student*** A120303

In-situ analysis of heat accumulation during ultrashort pulsed laser ablation, Benedikt Bornschlegel[1], Johannes Finger[2], [1]*Chair for Laser Technology LLT - RWTH Aachen University, Germany,* [2]*Fraunhofer Institute for Laser Technology ILT, Germany*

15:00 We3-L8 ***Invited*** A121143

Ablation of dielectrics with ultrashort laser pulses: Investigation of ionization mechanisms and outcomes, Olivier Uteza[1], Corinne Pasquier[1], Marc Sentid[1], Nicolas Sanner[1], [1]*Aix-Marseille University, CNRS, LP3, France*

15:30 Coffee Break

Session 17. ***Room 4***

HPL 4: Monitoring

Chair: Teruyoshi Kadoya, LTF-Laser Technology Fountain, Japan

14:00 We4-H7 ***Invited*** A120541

Advanced laser material processing: How OCT sets new standards, Rüdiger Moser[1], Matthias Strebel[1], Ehsan Zahedi[1], Florian Opitz[1], Stephan André[2], Tobias Beck[2], Markus Kogel-Hollacher[1], [1]*Precitec GmbH & Co. KG, Germany,* [2]*Precitec Optronik GmbH, Germany*

14:30 We4-H8 ***Student*** A120201

Monitoring and closed-loop building height controller for LMD-processes, Thomas Berners[1], Alexander Epple[1], Christian Brecher[1], [1]*Laboratory for Machine Tools and Production Engineering (WZL) of RWTH Aachen University, Germany*

14:50 We4-H9 ***Student*** A121203

High-speed imaging of laser ablation process using parallel phase-shifting interferometry, Koichiro Yasuda[2], Ryota Takagi[2], Ktsuhiro Ishii[1], Kazuhisa Fujita[1], Hideaki Shirai[2], Akihiro Tsuboi[1], [1]*The Graduate School for Creation of New Photonics Industries in Japan,* [2]*DENSO CORPORATION in Japan*

15:10 We4-H10 A120188

Study on intellectualization of laser processing with machine learning -parameter suggesting and in-process monitoring-, Kiyokazu Mori[1,2], Toshiyuki Kusumoto[1], [1]*The Graduate School for The Creation of New Photonics Industries, Japan,* [2]*Kanagawa Institute of Industrial Science and Technology, Japan*

15:30 Coffee Break

Session 9. ***Room 1***

LPM: SP1-4 "Laser synthesis and processing in liquids"

Chair: Tomoyuki Yatsuhashi, Osaka City University, Japan

16:00 We1-L8 ***Invited*** A122598

Synthesis of cocatalysts by pulse laser ablation in liquid for photocatalytic hydrogen production, D. Amaranatha Reddy[1], Yujin Kim[1], Rory Ma[1], Tae Kyu Kim[1], [1]*Department of Chemistry, Yonsei University, South Korea*

16:30 We1-L9 A120141

Amorphous transitional metal oxides from laser ablation in liquids for photocatalytic hydrogen production, Zhaoyong Lin[1], Chun Du[1], Bo Yan[1], Guowei Yang[1], [1]*Sun Yat-sen University, China*

16:50 We1-L10 A120268

Pulsed laser post processing of transition metal oxides for defect-engineering and catalysis research applications, Sven Reichenberger[1], Swen Zerebecki[1], Marcus Lau[2], Baoxiang Peng[3], Astrid Müller[4], Martin Muhler[3], Stephan Barcikowski[1], [1]*Laboratory of Industrial Chemistry, Ruhr-University Bochum, Germany,* [2]*TRUMPF Laser- und Systemtechnik GmbH, Germany,* [3]*Technical Chemistry I and Center for Nanointegration Duisburg-Essen (CENIDE), Research Center for Nano Energy Technology (NETZ), Duisburg, University of Duisburg-Essen, Germany,* [4]*Department of Chemical Engineering, University of Rochester, USA*

17:10 We1-L11 ***Student*** A120236

One-step synthesis of catalytically active silica-metal nanoparticles via femtosecond reactive laser ablation in liquid (fs-RLAL), Mallory G. John[1], [1]*Virginia Commonwealth University, United States*

17:30 close

Session 12. ***Room 2***

LPM: Nano ripple

Chair: Jan J. Dubowski, Université de Sherbrooke, Canada

16:00 We2-L9 A120280

Theoretical and experimental investigation of the formation of high spatial frequency periodic structures on solids irradiated by ultrashort laser pulses, Nikolay A. Kirichenko[1], Ekaterina V. Barmina[1], Georgy Shafeev[1], [1]*Prokhorov General Physics Institute of the Russian Academy of Sciences, Russia*

16:20 We2-L10 A120216

Hierarchical microstructures with high spatial frequency laser induced periodic surface structures (HSFLs) possessing different orientations created by high-fluence femtosecond laser ablation of silicon in liquids, Dongshi Zhang[1], Koji Sugioka[1], [1]*RIKEN Center for Advanced Photonics, Wako, Saitama, Japan*

16:40 We2-L11 ***Invited*** A120616

Role of hydrodynamic mechanisms in formation of femtosecond laser-induced periodic surface structures, Evgeny L Gurevich[1], Stella Maragkaki[1,2], Yoann Levy[3], Thibault J.-Y. Derrien[3], Nadezhda M. Bulgakova[3], [1]*Ruhr University Bochum, Applied Laser Technologies, Germany,* [2]*IESL FORTH, Heraklion Crete, Greece,* [3]*HiLASE Centre, Institute of Physics of the Czech Academy of Sciences, Czech Republic*

17:10 We2-L12 ***Student*** A120196

Effect of high pulse repetition rate for achieving micro/nano surface structures on Ti6Al4V using femto second laser micromachining, Murugesh Munaswamy[1], G. L. Samuel[1], [1]*Indian Institute of Technology Madras, India*

17:30 We2-L13 A119969

Pressure-dependent formation of laser-induced periodic surface structures on copper, Masato Kubo[1], Shigeki Matsuo[1], [1]*Shibaura Institute of Technology, Japan*

17:50 close

Day 2: May 22, Wednesday

Session 15. ***Room 3***

LPM: Ultrashort pulse laser processing 2

Chair: Olivier Uteza, University of Aix-Marseille, France

16:00 We3-L9 **Invited** A120612

Additive/subtractive 3D structuring of glass interposer for ultra-dense silicon photonics I/O, Gligor Djogo[1], Stephen Ho[1], Moez Haque[1], Erden Ertorer[1], Jianzhao Li[1], Jun Liu[2], Xiaolu Song[2], Jing Suo[2], Peter R. Herman[1], *[1]The Edward S. Rogers Sr. Department of Electrical and Computer Engineering, University of Toronto, Toronto, Canada, [2]Optical & Microwave Technology Research Department, Huawei Technologies Co., Ltd., China*

16:30 We3-L10 A120304

Advanced ultrafast laser bessel beam for machining metallic materials, Huu-Dat Nguyen[1], Sedao[1,2], Nicolas Faure[1], Cyril Mauclair[1,2], Razvan Stoian[1], *[1]Laboratoire Hubert Curien, UMR CNRS 5516, Saint-Etienne, France, [2]GIE Manutech-USD, Saint-Etienne, France*

16:50 We3-L11 A120006

Beam deflection technologies for ultra short pulse lasers, Holger Schlüter[1], Ze'ev Kirshenboim[2], *[1]SCANLAB GmbH, Germany, [2]Migdal Ha-Emek, Israel*

17:10 We3-L12 **Student** A120507

Inscription of waveguide Bragg gratings with ultrashort Bessel beams, Guodong Zhang[1,2], Guanghua Cheng[1,2], Razvan Stoian[2], *[1]State Key Laboratory of Transient Optics and Photonics, Xi'an Institute of Optics and Precision Mechanics, CAS, Xi'an, China, [2]Laboratoire Hubert Curien, UMR 5516 CNRS, Universit é de Lyon, Universit é Jean Monnet, 42000 Saint Etienne, France*

17:30 We3-L13 **Student** A120222

Impact of high-peak power laser beam on transmission losses of hollow-core antiresonant optical fibres, Shouyue Wu[1], Bartlomiej Siwicki[1], Richard M. Carter[1], Jonathan D. Shephard[1], Fei Yu[2], Duncan P. Hand[1], *[1]Institute of Photonics and Quantum Sciences, School of Engineering and Physical Sciences,, Heriot-Watt University, Edinburgh, UK, [2]Centre for Photonics and Photonic Materials, Department of Physics,, University of Bath, Bath, UK*

17:50 close

Session 18. ***Room 4***

HPL 5: Additive Manufacturing 2

Chair: Jingbo Wang, Panasonic Smart Factory Solutions Co., Ltd., Japan

16:00 We4-H11 **Invited** A120118

Laser additive manufacturing of (Ti3Al+TiB)/Ti composite for high temperature application, Zhuguo Li[1], Yueqiao Feng[1], Kai Feng[1], Chengwu Yao[1], *[1]Shanghai Jiao Tong University, P.R. China*

16:30 We4-H12 A121297

Innovative aerospace and space structures made by additive manufacturing, Elena Lopez[1], Mirko Riede[1], Juliane Moritz[1], Michael Müller[1], Frank Brückner[1,2], Christoph Leyens[1,3], *[1]Fraunhofer Institute for Material and Beam Technology IWS, Dresden, Germany, [2]Luleå University of Technology, Sweden, [3]Technische Universität Dresden, Germany*

16:50 We4-H13 A120322

Laser synthesis of materials for laser additive manufacturing, Stephan Barcikowski[1], Tim Hupfeld[1], René Streubel[1], Michael Schmidt[2], Johannes Henrich Schleifenbaum[3], Bilal Gökce[1], *[1]Technical Chemistry I, University of Duisburg-Essen and Center for NanoIntegration Duisburg-Essen CENIDE, Germany, [2]Department of Photonic Technologies, University of Erlangen-Nuremberg and Bayerisches Laserzentrum, Germany, [3]Digital Additive Production, RWTH Aachen University and Fraunhofer Institute of Laser Technology, Germany*

17:10 We4-H14 A120053

Mpact of powder application on particle incorporation during direct metal deposition, Joerg Volpp[1], Himani Siva Prasad[1], *[1]Department of Applied Physics and Mechanical Engineering, Luleå University of Technology, Sweden*

17:30 We4-H15 A120308

The microstructure and mechanical properties of Stellite-6/WC coatings produced by laser cladding and synchronous powder feeding method, Guangyuan Wang[1], Jiazi Zhang[1], Sen Yang[1], *[1]Nanjing University of Science and Technology*

17:50 close

Day 3: May 23, Thursday

Session 19. ***Room 1***

LPM: SP1-5 "Laser synthesis and processing in liquids"

Chair: Takeshi Tsuji, Shimane University, Japan

9:00 Th1-L1 A122485

Graphite carbon encased gold nanoparticles with specific reaction channels as ultrastable oxygen reduction electrocatalysts, Changhao Liang[4], [1]*Institute of Solid State Physics, China*

9:20 Th1-L2 A120018

Oxygen evolution reaction in nearly neutral solution catalyzed by CoO-based multiphase nanoparticles prepared by femtosecond laser ablation in water, Teppei Nishi[1], Yuichiro Hayasaka[2], Tomiko M. Suzuki[1], Shunsuke Sato[1], Takahiro Nakamura[3], Shunichi Sato[3], Takeshi Morikawa[1], [1]*TOYOTA CENTRAL R&D LABS., INC, Japan,* [2]*The Electron Microscopy Center, Tohoku University, Japan,* [3]*Institute of Multidisciplinary Research for Advanced Materials, Tohoku University, Japan*

9:40 Th1-L3 A120215

How surfactant-free particles evolve and how prevent their evolution by ex situ photoresist functionalization, Dongshi Zhang[1], Koji Sugioka[1], [1]*RIKEN Center for Advanced Photonics, Wako, Saitama, Japan*

10:00 Coffee Break

Session 23. ***Room 2***

LPM: Microfabrication

Chair: Ruwen Peng, Nanjing University, China

8:50 Th2-L1 A120273

Selective LIBWE on hydrophobic surface for single-cell patterning, Ji-Yen Cheng[1,2,3,4], Cheng-Lin Chung[1], Mei-Yi Lu[1], Hui-Fang Chang[1], [1]*Academia Sinica, Taiwan,* [2]*National Taiwan Ocean University, Keelung, Taiwan,* [3]*National Yang-Ming University, Taiwan,* [4]*Chang Gung University, Taiwan*

9:10 Th2-L2 A121054

Direct laser writing technique for creating non-enzymatic and gas sensors, Evgeniia Khairullina[1], Vasilii Mironov[1], Vladimir Andrianov[1], Mizue Mizoshiri[2], Maxim Panov[1], Ilya Tumkin[1], [1]*Saint Petersburg State University, Russia,* [2]*Nagaoka University of Technology, Japan*

9:30 Th2-L3 A121121

Direct laser printing of functional surfaces and microdevices with structured beams, Aleksandr Kuchmizhak[1, 2], [1]*School of Natural Sciences, Far Eastern Federal University, Vladivostok, Russia,* [2]*Institute for automation and control processes of FEB RAS, Vladivostok, Russia*

9:50 Th2-L4 ***Invited*** A121894

Ultrafast laser-materials engineering and diagnostics for neural tissue engineering applications, Emmanuel Stratakis[1], [1]*Foundation for Research and Technology - Hellas (F.O.R.T.H.), Institute of Electronic Structure and Laser (I.E.S.L.), Greece*

10:20 Coffee Break

Session 27. ***Room 3***

LPM: Ultrashort pulse laser processing 3

Chair: Gediminas Račiukaitis, FTMC - Center for Physical Sciences and Technology, Lithuania

8:50 Th3-L1 A120274

High-rate micro hole drilling of silicon using ultrashort pulse laser radiation, Andreas Gruner[1], Lucas Naumann[1], Joerg Schille[1], Udo Loeschner[1], [1]*Laserinstitut Hochschule Mittweida, Germany*

9:10 Th3-L2 ***Student*** A120212

Investigation of the ablation rate of metals by means of few ultrashort laser pulses up to 100 J/cm², Dennis Haasler[1], Tobias Schneider[1], Reinhart Poprawe[1], [1]*Chair for Laser Technology (LLT), RWTH Aachen University, Germany*

9:30 Th3-L3 ***Student*** A120086

Adaption of energy deposition in helical drilling of multidimensional micro holes using ultrashort laser pulses, Chao He[1,2], Dominik Esch[3], Arnold Gillner[1,2], [1]*RWTH Aachen University, Chair for Laser Technology LLT, Germany,* [2]*Fraunhofer Institute for Lasertechnology ILT, Germany,* [3]*Hochschule Bonn-Rhein-Sieg, School of Natural Sciences, Germany*

9:50 Th3-L4 ***Student*** A120064

Femtosecond laser drilling of copper: A modeling and experiment comparison, Yi-Hsien Liu[1], Chung-Wei Cheng[1], Jinn-Kuen Chen[2], [1]*Department of Mechanical Engineering, National Chiao Tung University, Taiwan,* [2]*Department of Mechanical and Aerospace Engineering, University of Missouri, U.S.A.*

10:10 Coffee Break

Session 31. ***Room 4***

HPL 6: Additive Manufacturing 3

Chair: Takashi Ishide, Mitsubishi Heavy Industries, Japan; JLPS President

9:00 Th4-H1 ***Invited*** A120338

Ultraviolet laser lithography of dielectric micropatterns, Soshu Kirihara[1], [1]*Osaka University, Japan*

9:30 Th4-H2 A120628

Characterisation of the optical emission in laser powder bed fusion process, Emil Duong[1], Moritz Kroeger[2], Ulrich Thombansen[1], Christian Knaak[1], Peter Abels[1], [1]*Fraunhofer Institute for Laser Technology ILT, Germany,* [2]*RWTH Aachen University - Chair for Laser Technology LLT, Germany*

9:50 Th4-H3 A120886

Microstructure and mechanical properties of carbon steels fabricated by selective electron beam melting, Kazuki Itoda[1], Kenta Aoyagi[2], Yuichiro Koizumi[2], Yuki Kawamura[3], Kazuo Kikawa[3], Akihiko Chiba[2], [1]*Graduate School of Engineering, Tohoku University, Japan,* [2]*Institute for Materials Research, Tohoku University, Japan,* [3]*Honda R&D Co. Ltd., Japan*

10:10 Coffee Break

Session 20. ***Room 1***

LPM: SP1-6 "Laser synthesis and processing in liquids"

Chair: Tae Kyu Kim, Pusan National University, Korea

10:30 Th1-L4 A120278

Laser fabrication of phthalocyanine nanoparticle colloids toward bio-applications, Taisei Himeda[1], Ryo Kihara, Tsuyoshi Asahi, [1]*Ehime University, Japan*

10:50 Th1-L5 A120302

Scaling of laser fragmentation in a free liquid jet for manipulation of semiconductor particles for photocatalytic application, Sven Reichenberger[1], Ina Haxhiaj[1], Astrid M. Müller[2], Stephan Barcikowski[1], Marcus Lau[3], [1]*Technical Chemistry I, Department of Chemistry, and Center for Nanointegration Duisburg-Essen (CENIDE), University of Duisburg-Essen, Germany,* [2]*Department of Chemical Engineering, University of Rochester, Rochester, New York, USA,* [3]*TRUMPF Laser- und Systemtechnik GmbH, Ditzingen, Germany*

11:10 Th1-L6 ***Student*** A120082

Synthesis of ultra-small gold nanoparticles by nanosecond-pulsed laser fragmentation in liquids - impact of laser intensity and electrolytes on particle size distributions, Anna Rosa Ziefuß[1], Sven Reichenberger[1], Christoph Rehbock[1], Indranath Chakraborty[2], Wolfgang J. Parak[2], Stephan Barcikowski[1], [1]*Technical Chemistry I and Center for Nanointegration, Duisburg-Essen (CENIDE), University of Duisburg-Essen, Germany,* [2]*Fachbereich Physik und Chemie, CHyN, Universität Hamburg, Germany*

11:30 Th1-L7 A120165

Formation of unique nanoparticle agglomerates during laser ablation of CaO in liquids, Takeshi Tsuji[1], Ryo Antatsu[2], Miki Kaneko[2], [1]*Graduate School of Natural Science and Technology, Japan,* [2]*Interdisciplinary Faculty of Science and Engineering, Japan*

11:50 Lunch Time

Session 24. ***Room 2***

LPM: Micro-machining 1

Chair: Udo Klotzbach, Fraunhofer-Institut für Werkstoff- und Strahltechnik, Germany

10:30 Th2-L5 A122486

Microfabrication of PDMS structures based on wave optics using EUV radiations from laser-produced plasma, Tetsuya Makimura[1], Hikari Urai[1], Eriko Kira[1], Hiroyuki Niino[2], [1]*University of Tsukuba, Japan,* [2]*AIST, Japan*

10:50 Th2-L6 ***Student*** A120235

Innovative approach for high speed micromachining of 3-dimensional constructs with nanosecond laser and evaluation of the quality of the micromachined surface, Shayan Mohammadi,Pour khajani[1], Hamid Ebrahimi Orimi[1], Sivakumar Narayanswamy[1,2], [1]*Faculty of Mechanical Engineering, Department of Mechanical, Industrial and Aerospace Engineering, Concordia University, Montreal, QC, Canada,* [2]*Department of Mechanical Engineering, SRM University, Amaravati, India*

11:10 Th2-L7 ***Invited*** A122859

Fabrication of 3D embedded microstructures in ceramics by integrated additive manufacturing and laser micromachining, Hai Xiao[1], Jincheng Lei[1], Yuzhe Hong[2], Shenglong Mu[2], Yang Song[1], Jianhua Tong[2], Fei Peng[2], [1]*Department of Electrical and Computer Engineering, Clemson University, South Carolina, USA,* [2]*Department of Materials Science and Engineering, Clemson University, South Carolina, USA*

11:40 Th2-L8 A122862

Beam shaping with multi-plane light conversion for femtosecond laser-based material processing, Clément Jacquard[1], Pauline Boucher[1, 2], Antonin Billaud[1], Nicolas Laurenchet[1], Gwenn Pallier[1], Pu Jian[1], Olivier Pinel[1], Guillaume Labroille[1], [1]*Cailabs, France,* [2]*Laboratoire Kastler Brossel, France*

12:00 Lunch Time

Conference Managerment Room (B1 floor)

LPM Poster Session II (For even-numbered posters)

12:10 **Poster Session II and Exhibition (Conference Managerment Room (B1 floor))**

& Lunch Time

Session 28. ***Room 3***

LPM: Ultrashort pulse laser processing 4

Chair: Peter R. Herman, University of Toronto, Canada

10:30 Th3-L5 A120013

Modeling of femtosecond laser ablation of copper with GHz bursts, Chung-Wei Cheng[1], Jinn-Kuen Chen[2], [1]*Department of Mechanical Engineering, National Chiao Tung University, No. 1001, Ta Hsueh Road, Hsinchu 300, Taiwan,* [2]*Department of Mechanical and Aerospace Engineering, University of Missouri, Columbia, Missouri 65211, U.S.A.*

10:50 Th3-L6 ***Student*** A120289

Rapid 3D micro-machining by optimised bursts of ultrashort laser pulses - beyond the ablation-cooling, Andrius Žemaitis[1], Paulius Gečys[1], Gediminas Račiukaitis[1], Mindaugas Gedvilas[1], [1]*Center for Physical Sciences and Technology, Lithuania*

11:10 Th3-L7 ***Student*** A120629

Multi-sensor system for real-time monitoring of laser micro-structuring, Milena Zuric[1], Oliver Nottrodt[1], Peter Abels[1], [1]*Fraunhofer Institute for Laser Technology ILT, Steinbachstr. 15, 52074 Aachen, Germany*

11:30 Th3-L8 A120150

Ultra-short laser pulse time-of-flight holographic control for sensing applications, Kristian Cvecek[1,2,3], Catharina Rebling[3], Kilian Schütz[1], Michael Schmidt[1,2,3], [1]*Institute of Photonic Technologies, Friedrich-Alexander-University of Erlangen-Nuremberg, Germany,* [2]*SAOT – Erlangen Graduate School in Advanced Optical Technologies, Friedrich-Alexander-University of Erlangen-Nuremberg, Germany,* [3]*blz – Bayerisches Laserzentrum, Germany*

11:50 Th3-L9 ***Student*** A120281

Machining of micro channels in single crystal silicon wafer using ultra-short pulse laser for MEMS applications, Shalini Singh[1], G. L. Samuel[1], [1]*Research Scholar, Indian Institute of Technology, Madras, India,* [2]*Professor*

12:10 Lunch Time

Session 32. ***Room 4***

HPL 7: Welding 2

Chair: Masahiro Tsukamoto, Osaka University, Japan

10:30 Th4-H4 ***Invited*** A120937

Laser welding of copper for e-mobility applications—Challenges, limits and strategies using different laser technologies, Andreas Heider[1], Lukas Alter[1], Christoph Bantel[1], Reiner Ramsayer[1], [1]*Robert Bosch GmbH, Germany*

11:00 Th4-H5 A120935

Blue diode laser status and outlook in technology and applications, Markus Ruetering[1], Simon Britten[1], Sörn Ocylok[1], [1]*Laserline GmbH, Germany,* [2]*Laserline GmbH, Germany,* [3]*Laserline GmbH, Germany*

11:20 Th4-H6 ***Student*** A120928

Effect of laser wavelength on welding of pure copper plate with blue diode laser, Kento Morimoto[1,3], Masahiro Tsukamoto[2], Abe Nobuyuki[2], Shin- ichiro Masuno[2], Kazuyuki Azumi[2,3], Yoshihiko Hayashi[2,3], [1]*Graduate School of Engineering, Osaka University, Japan,* [2]*Joining and Welding Research Institute, Osaka University, Japan,* [3]*OSAKA FUJI CORPORATION, Japan*

11:40 Th4-H7 A120205

High quality copper welding by high power green laser, Tsuyoshi Nakamura[1], Matthias Beranek[2], Ruediger Brockmann[2], [1]*TRUMPF Corporation, Japan,* [2]*TRUMPF Laser- und Systemtechnik GmbH, Germany*

12:00 Lunch Time

Conference Managerment Room (B1 floor)

LPM Poster Session II (For even-numbered posters)

12:10 **LPM Poster Session II and Exhibition (Conference Managerment Room (B1 floor))**

& Lunch Time

Day 3: May 23, Thursday

Session 21. ***Room 1***

LPM: SP2-1 "Laser coloring using short and ultrashort pulsed lasers"

Chair: Andres F. Lasagni, Professur für Laserbasierte Methoden der großflächigen Oberflächenstrukturierung, Institut für Fertigungstechnik, Technische Universität Dresden, Germany

14:00 Th1-L8 ***Invited*** A121983

Coloring of metals using long pulse duration lasers, Arkadiusz J. Antończak[1], Katarzyna M. Łęcka[1], Łukasz Skowroński[2], Marek Trzcinski[2], Vasyl V. Kinzhybalo[3], Krzysztof M. Abramski[1], *[1]Laser Microprocessing Group, Faculty of Electronics, Wroclaw University of Science and Technology, Poland, [2]Institute of Mathematics and Physics, University of Technology and Life Sciences, Poland, [3]Institute of Low Temperature and Structure Research, Poland*

14:30 Th1-L9 ***Invited*** ***Student*** A120793

Ultra-short pulsed laser marking and coloration of metals with segmented pixel parameter transformation, Norbert Ackerl[1], Pascal Gugger[1], Maximilian Warhanek[1], Johannes Gysel[2], Konrad Wegener[1], *[1]ETH Zurich, D-MAVT, Institute of Machine Tools and Manufacturing (IWF), Switzerland, [2]Inspire AG, Switzerland*

15:00 Th1-L10 ***Student*** A120959

Laser-induced thin oxide layers on stainless steel - wear and corrosion resistance in Ringer solution, Bogdan Szczygiel[1], Arkadiusz Jan Antonczak[2], Katarzyna Lecka[2], *[1]Faculty of Chemistry, Wroclaw University of Science and Technology, Poland, [2]Faculty of Electronics, Wroclaw University of Science and Technology, Poland*

15:20 Th1-L11 ***Invited tutorial*** A120313

Investigation of structural colors formed on metal surface by direct laser interference patterning, Bogdan Voisiat[1], Wei Wang[1], Max Holzey[1], Andrés Fabián Lasagni[1, 2], *[1]Technische Universität Dresden, Germany, [2]Fraunhofer IWS, Germany*

15:50 Coffee Break

Session 25. ***Room 2***

LPM: Direct writing

Chair: Aiko Narazaki, AIST, Japan

14:00 Th2-L9 ***Invited*** A120060

Laser direct writing of conductive carbon microelectrodes and device applications, Akira Watanabe[1], Jinguang Cai[2], *[1]Institute of Multidisciplinary Research for Advanced Materials, Tohoku University, Japan, [2]Institute of Materials, China Academy of Engineering Physics, P. R. China*

14:30 Th2-L10 A120247

Cu-Ni micropatterning on flexible substrates using femtosecond laser reductive sintering, Mizue Mizoshiri[1], Ha Phuong Nam[1], *[1]Nagaoka University of Technology, Japan*

14:50 Th2-L11 ***Student*** A120898

Surface morphology analysis of electrically conductive β-SiC fabricated by femtosecond laser irradiation, Shuichiro Hayashi[1], Yasutaka Nakajima[1], Mitsuhiro Terakawa[1, 2], *[1]School of Integrated Design Engineering, Keio University, Japan, [2]Department of Electronics and Electrical Engineering, Keio University, Japan*

15:10 Th2-L12 A120540

Femtosecond laser fabrication of micro-optical elements on hard materials, Xue-Qing Liu[1], Lei Yu[2], Shuang-Ning Yang[2], *[1]State Key Laboratory of Precision Measurement Technology and Instruments, Department of Precision Instrument, Tsinghua University, China, [2]State Key Laboratory of Integrated Optoelectronics, College of Electronic Science and Engineering, Jilin University, China*

15:30 Th2-L13 ***Invited*** A120100

Femtosecond laser direct writing in silica glass: From nanogratings to circular optical properties, Matthieu Lancry[1], Bertrand Poumellec[1], *[1]University Paris Sud, France*

16:00 Coffee Break

Session 29. ***Room 3***

LPM: Micro-welding

Chair: Hirofumi Hidai, Chiba University, Japan

14:00 Th3-L10 A120282

High yield ultrafast laser microwelding process for direct joining of metal-to-glass, Paulina Olga Morawska[1], Samuel Hann[1], Matthew Jan,Daniel Esser[1], Richard Mark Carter[1], Duncan Paul Hand[1], [1]*Applied Optics and Photonics Group, School of Engineering and Physical Sciences, Heriot-Watt University, Edinburgh, UK*

14:20 Th3-L11 A120295

Experimental characterization of spectral scattering properties of polymers for laser welding applications, Andreas Schkutow[1], Thomas Frick[1], Karsten Scholle[2], Samir Lamrini[2], Peter Fuhrberg[2], [1]*Technische Hochschule Nuernberg Georg Simon Ohm, Germany,* [2]*Futonics Laser GmbH, Germany*

14:40 Th3-L12 A120705

Laser material interactions in pulsed and continuous wave fibre laser welding, Wojciech Suder[1], Julio Coroado[1], Marta Ostolaza[1], Supriyo Ganguly[1], Stewart Williams[1], [1]*Cranfield University, UK*

15:00 Th3-L13 ***Student*** A120267

Investigation on the influence of the overlap factor during the expansion of the weld joint area with modulated laser beam welding over gap, Woo-Sik Chung[1], Alexander Olowinsky[1], [1]*Fraunfer Insititute for Laser Technology, Germany*

15:20 Th3-L14 ***Student*** A120263

Absorber-free quasi-simultaneous laser welding of transparent microfluidic devices, Nam-Phong Nguyen[1], Stefan Behrens[1], Maximilian Brosda[1], Alexander Olowinsky[1], Arnold Gillner[2], [1]*Fraunhofer-Institut fuer Lasertechnik ILT, Germany,* [2]*Fraunhofer Institute for Laser Technology,, Aachen, Germany*

15:40 Coffee Break

Session 33. ***Room 4***

HPL 8: Cutting & Drilling

Chair: Seiji Katayama, Emeritus Prof., Osaka University, Japan; NADEX Co. Ltd., Japan

14:00 Th4-H8 ***Invited*** A120390

Recent R&D progress on laser cutting technology for nuclear power plant decommisioning at KIMM, Jeong Suh[1], Eun-Joon Chun[1], Su-Jin Lee[1], [1]*Laser Industrial Technology Research Group, Korea Institute of Machinery and Materials (KIMM), Republic of Korea*

14:30 Th4-H9 A120277

About three fundamental mysteries regarding fiber laser beam cutting of stainless steel, Dirk Petring[1], Dennis Arntz[2], Stoyan Stoyanov[1], Frank Schneider[1], [1]*Fraunhofer Institute for Laser Technology ILT, Germany,* [2]*Chair for Laser Technology LLT, RWTH Aachen University, Germany*

14:50 Th4-H10 ***Student*** A120241

Study on reduction of slope angle of kerf in thick plate cutting of mild steel by fiber laser, Seigo Kadonaga[1], Kyo Kitagawa[1], Yasuhiro Okamoto[1], Akira Okada[1], Hiroaki Ishiguro[2], Ryohei Ito[2], Akihiko Sugiyama[3], Hironobu Miyoshi[3], Ayako Nagase[3], [1]*Graduate School of Natural Science and Technology, Okayama University, Japan,* [2]*AMADA HOLDINGS CO., LTD., Japan,* [3]*AMADA CO., LTD., Japan*

15:10 Th4-H11 A120279

New optimization procedure for efficient laser beam cutting of fiber reinforced plastics (GFRP and CFRP), Dirk Petring[1], Frank Schneider[1], Norbert Wolf[1], [1]*Fraunhofer Institute for Laser Technology ILT, Germany*

15:30 Th4-H12 ***Student*** A120166

Delamination crack initiation of laser drilling process for multi-layer material system, You Wang[1], Torsten Hermanns[2], Markus Nießen[2], Stefan Jassen[2], Dennis Haasler[3], Wolfgang Schulz[1,2], [1]*Department of nonlinear dynamics of laser processing in RWTH Aachen University, Germany,* [2]*Fraunhofer institute for laser technology, Germany,* [3]*Chair for laser technology in RWTH Aachen University, Germany*

15:50 Coffee Break

Day 3: May 23, Thursday

Session 22. ***Room 1***

LPM: SP2-2 "Laser precision processing for Terahertz and optical applications"

Chair: Bogdan Voisiat, Technische Universität Dresden, Germany

16:20 Th1-L12 A120286

Fabrication of LIPSS-based metallic polarization gratings, Alejandro San Blas[1,2], Ainhara Rodriguez[1,2], Noemi Casquero[1,2], Santiago Olaizola[1,2], Miguel Martinez-Calderon[1,2], *[1]Ceit-IK4, Spain, [2]Universidad de Navarra (Tecnun), Spain*

16:40 Th1-L13 ***Student*** A120189

Terahertz tapered antireflective structures fabricated by femtosecond laser processing, Xi Yu[1], Seiya Kato[1], Michiharu Ota[2], Nobuhito Takizawa[3], Kazuhisa Mikame[3], Shingo Ono[1], *[1]Nagoya Institute of Technology, Japan, [2]IMRA America, Inc., Japan, [3]Tamari Industry Co., LTD., Japan*

17:00 Th1-L14 A120211

Laser fabrication of diffractive optical elements for THz radiation, Simonas Indrišiūnas[1], Evaldas Svirplys[1], Gediminas Račiukaitis[1], Linas Minkevičius[1], Andrzej Urbanowicz[1], Irmantas Kašalynas[1], Heiko Richter[2], Heinz-Wilhelm Hübers[2], *[1]Center for Physical Sciences and Technology, Lithuania, [2]German Aerospace Center (DLR), Institute of Optical Sensor Systems, Germany*

17:20 Th1-L15 ***Student*** A120058

Microstructuring NbN superconductor using pulsed laser, Manikandan E[1], Karthigeyan K A[1], Sreeja B S[1], Radha S[1], John Jesudan[2], Pratab Roychautri[2], *[1]SSN College of Engineering, India, [2]Tata Institute of Fundamental Research, India*

17:40 To banquet

Session 26. ***Room 2***

LPM: Direct writing: LIFT

Chair: Akira Watanabe, Tohoku University, Japan

16:20 Th2-L14 ***Invited*** A121244

Fundamentals and (potential) applications of laser-induced forward transfer (LIFT) of 3D free standing microstructures, Matthias Feinaeugle[1], Ralph Pohl[2], Gert-willem Römer[1], *[1]University of Twente, Faculty of Engineering Technology, the Department of Mechanics of Solids, Surfaces & Systems (MS3), Chair of Laser Processing„ Enschede, The Netherlands, [2]Demcon B.V., Institutenweg 25, Enschede, 7521 PH, The Netherlands*

16:50 Th2-L15 A121038

Dynamics of double pulse LIFT, Q. Li[1], A.-P. Alloncle[1], D. Grojo[1], Ph. Delaporte[1], *[1]LP3 laboratory, CNRS-Aix-Marseille University, France*

17:10 Th2-L16 A120294

Bio-active patterning of fibronectin-containing apatite by laser-induced forward transfer, Aiko Narazaki[1], Ayako Oyane[2], Hirofumi Miyaji[3], *[1]Electronics and Photonics Research Institute, AIST, Japan, [2]Nanomaterials Research Institute, AIST, Japan, [3]Faculty of Dental Medicine, Hokkaido University, Japan*

17:30 Th2-L17 A120225

LIFT of microstructures using elastomeric donor templates, Kristin M. Charipar[1], Raymond C.Y. Auyeung[1], Heungsoo Kim[1], Nicholas A. Charipar[1], Alberto Piqué[1], *[1]Naval Research Laboratory, 20375 USA*

17:50 Th2-L18 ***Student*** A120300

Laser printing of high solid content inks on flexible substrates, Pol Sopeña[1,2], Juan Marcos Fernández-Pradas[1,2], Pere Serra[1,2], *[1]Department of Applied Physics, Universitat de Barcelona, Spain, [2]Institute of Nanoscience and Nanotechnology (IN2UB), Universitat de Barcelona, Spain*

18:10 To banquet

Banquet

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

19:00 **Banquet (ANA Crowne Plaza Hotel Hiroshima, "Orchid" on 3rd floor)**

Session 30. ***Room 3***

LPM: Micro-machining 2

Chair: Mizue Mizoshiri, Nagaoka University of Technology, Japan

16:00 Th3-L15 A121018

Multi beam ultrafast laser patterning with single beam modulation and switching, Arnold Gillner[1], Alexander Meyer[1], Oliver Nottrodt[1], Johannes Finger[1], Martin Reininghaus[1], [1]*Fraunhofer Institute for Laser Technology, Aachen, Germany*

16:20 Th3-L16 A120983

Femtosecond laser processed micro structure for micro object arrangement in a microfluidic device, Yaxiaer Yalikun[1], Misuzu Namoto[1], Chaoying Fang[1], Yoichiroh Hosokawa[1], [1]*Graduate School of Materials Science, Nara Institute of Science and Technology, Japan*

16:40 Th3-L17 A120615

Fabrication of low-loss lithium niobate photonic structure with femtosecond laser assisted chemo-mechanical polishing, Min Wang[1], Rongbo Wu[2], Jintian Lin[2], Zhiwei Fang[1], Jianhao Zhang[2], Ya Cheng[1, 2], [1]*State Key Laboratory of Precision Spectroscopy, East China Normal University, Shanghai, China,* [2]*State Key Laboratory of High Field Laser Physics, Shanghai Institute of Optics and Fine Mechanics, Chinese Academy of Sciences, Shanghai, China*

17:00 Th3-L18 A121226

Deep drilling of metals with ultra-short laser pulses, Daniel J. Förster[1], Daniel Holder[2], Christian Freitag[1], Rudolf Weber[2], Thomas Graf[2], [1]*LightPulse Laser Precision, Stuttgart, Germany,* [2]*Institut für Strahlwerkzeuge, Stuttgart, Germany*

17:20 Th3-L19 A120306

Asymptotic bore hole model for ultrashort pulse laser-drilled carbon fiber preforms, Stefan Janssen[1], Dorian Kürschner[1], Torsten Hermanns[1], Markus Nießen[1], Wolfgang Schulz[1,2], [1]*Fraunhofer Institute for Laser Technology ILT, Germany,* [2]*RWTH Aachen University - Nonlinear Dynamics of Laser Manufacturing Processes Instruction and Research Department NLD, Germany*

17:40 To banquet

Session 34. ***Room 4***

HPL 9: Welding 3

Chair: Kazuhisa Mikame, TAMARI Industry Co., Ltd., Japan

16:00 Th4-H13 ***Invited*** A121772

Improvements in laser welding and brazing processes by beam oscillation, Peer Woizeschke[1], [1]*BIAS - Bremer Institut fuer angewandte Strahltechnik GmbH, Germany*

16:30 Th4-H14 A120251

Research progress on laser keyhole welding of dissimilar steel/Al joints, Li Cui[1], Hongxi Chen[1], Feng Pan[1], Boxu Chen[1], Dingyong He[1], [1]*Beijing University of Technology, P.R.China*

16:50 Th4-H15 A121044

Dissimilar joining of advanced structural and engineering components using latest generation pulsed fibre laser, Supriyo Ganguly[1], Sonia Meco[1], Julio Coroado[1], Wojciech Suder[1], Goncalo Pardal[1], Stewart Williams[1], Jack Gabzdyl[2], [1]*Cranfield University, UK*

17:10 Th4-H16 A120198

Evaluation of laser welding joint characteristic for dissimilar materials of oxygen free copper and aluminium, Wooseong Choi[1], Sanghoon Kang[1], Minjung Kang[1], [1]*Korea Institute of Industrial Technology*

17:30 To banquet

Banquet

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

19:00 **Banquet (ANA Crowne Plaza Hotel Hiroshima, "Orchid" on 3rd floor)**

Day 4: May 24, Friday

Session 35. ***Room 1***

LPM: SP3-1 "Laser processing of glass materials: current status, trends and future"

Chair: Yves Bellouard, École Polytechnique Fédérale de Lausanne, Switzerland

9:00 Fr1-L1 A120248

Relationship between joint strength and applied pressure in ultrafast laser microwelding of glass, Takayuki Tamaki[1], Hiroaki Ishino[1], Wataru Watanabe[2], [1]*National Institute of Technology, Nara College, Japan,* [2]*Ritsumeikan University, Japan*

9:20 Fr1-L2 A120309

Glass welding by ultrashort pulse laser without optical contacting, Yousuke Nakamura[1], Sören Richter[2], Dirk Sutter[3], [1]*TRUMPF Corporation, Japan,* [2]*TRUMPF Lasertechnik GmbH, Germany,* [3]*TRUMPF Laser GmbH, Germany*

9:40 Fr1-L3 A120283

Ultrafast laser microwelding of ultra-thin flexible glass, Paulina Olga Morawska[1], Matthew Jan,Daniel Esser[1], Richard Mark Carter[1], Paolo Melagari[2], Robert Douglas[2], Yun Fu Chan[2], Duncan Paul Hand[1], [1]*Applied Optics and Photonics group, School of Engineering and Physical Sciences,, Heriot-Watt University, Edinburgh, UK,* [2]*Centre for Process Innovation Ltd- National Printable Electronics Centre, Sedgefield, Stockton-on-Tees, UK*

10:00 Coffee Break

Session 38. ***Room 2***

LPM: Film deposition

Chair: Arkadiusz J. Antonczak, Wroclaw University of Technology, Poland

8:50 Fr2-L1 A121824

Flexible oxide thin films prepared by ultraviolet laser-assisted chemical solution process, Tetsuo Tsuchiya[1], Yuko Uzawa[1], Iwao Yamaguchi[1], Tomohiko Nakajima[1], Junichi Momoto[1], [1]*National Institute of Advanced Industrial Science and Technology (AIST), Japan*

9:10 Fr2-L2 A120147

Pulsed laser deposition from Lab to Fab, Ralph Delmdahl[1], Burkhard Fechner[1], Max Fischer[1], [1]*Coherent LaserSystems GmbH & Co. KG*

9:30 Fr2-L3 A120245

Dual beam pulsed laser deposition of functionally graded yttria-stabilized zirconia (YSZ) thermal barrier coating with improved adhesion strength, Chun Deng[1], Hyeongwon Kim, Hyungson Ki, [1]*South Korea*

9:50 Fr2-L4 A120944

Selective surface activation induced by laser (SSAIL): Physical-chemical mechanism of selective copper deposition on PA 6, Karolis Ratautas[1], Aldona Jagminienė[1], Ina Stankevičienė[1], Eugenijus Norkus[1], Gediminas Račiukaitis[1], [1]*Center for Physical Sciences and Technology, Lithuania*

10:10 Coffee Break

Session 41. ***Room 3***

LPM: Surface treatment 2

Chair: Toshihiko Ooie, AIST, Japan

8:50 Fr3-L1 A120988

Laser metal bumping with SUS316L molten powder jet for steel / carbon fiber reinforced thermoplastics joint, Kiyokazu Yasuda[1], Yuki Uchida[1], Rennosuke Tamura[1], Takahiro Hara[2], Yuji Sato[2], Masahiro Tsukamoto[2], *[1]Division of Materials and Manufacturing Science, Osaka University, Japan, [2]Joining and Welding Research Institute, Osaka University, Japan*

9:10 Fr3-L2 A120288

Laser-textured antibacterial surfaces: An industrial approach, Laura Gemini[1], Marc Fauçon[1], Adrian H.A. Lutey[2], Luca Romoli[2], Rainer Kling[1], *[1]ALPhANOV, France, [2]Università degli studi di Parma, Italy*

9:30 Fr3-L3 A121299

Hybrid micro textures-A multi-scale surface engineering approach for enhancing tribological characteristics, Niketh S[1], G.L. Samuel[2], *[1]Research Scholar, Indian Institute of Technology Madras, India, [2]Professor, Indian Institute of Technology Madras, India*

9:50 Fr3-L4 A120059

Dry laser peening for improving fatigue properties of laser welded 2024-T3 aluminum alloy using femtosecond laser pulses, Tomokazu Sano[1], Takayuki Eimura[1], Akio Hirose[1], Yosuke Kawahito[2], Seiji Katayama[2], Kazuto Arakawa[3], Ayumi Shiro[4], Takahisa Shobu[5], Kiyotaka Masaki[6], Yuji Sano[7], *[1]Division of Materials and Manufacturing Science, Graduate School of Engineering, Osaka University, Japan, [2]Joining and Welding Research Institute, Osaka University, Japan, [3]Interdisciplinary Faculty of Science and Engineering, Shimane University, Japan, [4]Quantum Beam Science Research Directorate, National Institute for Quantum and Radiological Science and Technology, Japan, [5]Materials Sciences Research Center, Japan Atomic Energy Agency, Japan, [6]National Institute of Technology, Okinawa College, Japan, [7]ImPACT (Impulsing Paradigm Change through Disruptive Technologies) Program under the Cabinet Office, the Government of Japan*

10:10 Coffee Break

Session 44. ***Room 4***

HPL 10: Welding 4

Chair: Yasushi Kitani, JFE Steel Corporation, Japan

8:50 Fr4-H1 ***Invited*** A120183

Cold cracking susceptibility of ultra-high tensile strength steel sheet during laser welding, Ryota Mori[2], Naoya Takemoto[1], Motomichi Yamamoto[1], Kyohei Maeda[2], Reiichi Suzaki[2], Kenji Shinozaki[1], *[1]Hiroshima university, Japan, [2]Kobe Steel Ltd., Japan*

9:20 Fr4-H2 ***Student*** A120981

Development of overlay welding technology using high-power diode laser and hot-wire system, Weian-An Lin[1], Hayato Kono[1], Motomichi Yamamoto[1], Kenji Shinozaki[1], Hideki Aono[2], Ryo Ejima[3], *[1]Graduate School of Engineering, Hiroshima University, Japan, [2]Matsumoto Kikai Co., Ltd., Japan, [3]Marubun Co., Japan*

9:40 Fr4-H3 A120246

Weldability, microstructure and properties of 304 stainless steel joint: Laser welding and laser-arc hybrid welding, Jingjing Yang[1], Chunyang Zhao[1], Zemin Wang[1], Xiaoyan Zeng[1], *[1]Wuhan National Laboratory for Optoelectronics, Huazhong University of Science and Technology, Wuhan, PR China*

10:00 Fr4-H4 A121371

Fundamental studies on application of laser-arc hybrid welding for manufacturing primary structural members in general merchant ships, Koji Gotoh[1], Takamori Uemura[2], Issei Uchino[2,3], Hisao Narimatsu[2,4], Atsuo Moriyama[5], *[1]Department of Marine Systems Engineering, Kyushu University, Japan, [2]Department of Civil and Structural Engineering, Graduate school of Engineering, Kyushu University, Japan, [3]Namura Shipbuilding Co. Ltd., Japan, [4]Tsuneishi Shipbuilding Co., Ltd., Japan, [5]Japan Ship Technology Research Association, Japan*

10:20 Coffee Break

Session 36. ***Room 1***

LPM: SP3-2 "Laser processing of glass materials: current status, trends and future"

Chair: Toney Fernandez, Macquarie University, Australia

10:30 Fr1-L4 ***Student*** A120163

Experimental study on the relationship between direction of crack propagation and thermal stress distribution in laser cleaving process for glass substrate, Yuki Nakajima[1], Keiji Yamada[1], Ryutaro Tanaka[1], Katsuhiko Sekiya[1], Kazuki Fukushima[1], [1]*Hiroshima University, Japan*

10:50 Fr1-L5 ***Student*** A120078

Real-time ultrafast 2D-imaging of femtosecond laser processing by a temporal wavelength division scheme, Takakazu Suzuki[1], Hirofumi Nemoto[1], Kazuki Takasawa[1], Kazuki Matsushita[1], Yuki Yamaguchi[1], Fumihiko Kannari[1], [1]*Keio University, Japan*

11:10 Fr1-L6 ***Invited*** A120332

Laser-induced metal particle manipulation in glasses, Hirofumi Hidai[1], [1]*Department of Mechanical Engineering,, Chiba University, Japan*

11:40 Fr1-L7 A120284

Fabrication of tellurite glass sphere for optical resonator by non-contact glass melting due to localized-laser heating, Tetsuo Kishi[1], Tsutaru Kumagai[1], Nobuhiro Matsushita[1], Tetsuji Yano[1], [1]*Tokyo Institute of Technology*

12:00 Lunch Time

Session 39. ***Room 2***

LPM: Medical and biological applications 1

Chair: Yoichiro Hosokawa, Nara Institute of Science and Technology, Japan

10:30 Fr2-L5 ***Invited*** A120090

Microfluidic fabrication of polymer materials using laser-induced bubble, Yasutaka Hanada[1], [1]*Hirosaki University, Japan*

11:00 Fr2-L6 A120204

Femtosecond laser direct write of pure fluorescent proteins, Daniela Serien[1], Abe Masashi[1,2], Mitsuhiro Terakawa[2,3], Hiroyuki Kawano[4], Atsushi Miyawaki[1,4], Katsumi Midorikawa[1], Koji Sugioka[1], [1]*RIKEN Center for Advanced Photonics, RIKEN, Japan,* [2]*School of Integrated Design Engineering, Keio University, Japan,* [3]*Department of Electronics and Electrical Engineering, Keio University, Japan,* [4]*RIKEN Center for Brain Science, RIKEN, Japan*

11:20 Fr2-L7 A120209

Femtosecond laser photoporation of fluorogenic peptide aptamers for highly sensitive imaging of polysaccharides in Euglena gracilis cells, Takanori Maeno[1], Takanori Uzawa[2], Izumi Kono[2], Kazunori Okano[1], Takanori Iino[1], Taro Ogawa[3], Osamu Iwata[3], Takuro Ito[4], Kengo Suzuki[3], Keisuke Goda[4], Yoichiroh Hosokawa[1], [1]*Division of Materials Science, Nara Institute of Science and Technology, Japan,* [2]*Nano Medical Engineering Laboratory, RIKEN, Japan,* [3]*euglena Co. Ltd., Japan,* [4]*Department of Chemistry, University of Tokyo, Japan*

11:40 Fr2-L8 ***Student*** A120080

Evaluation of myoblast adhesion and differentiation on biodegradable polymer films with femtosecond laser fabricated micro through-holes, Izumi Takayama[1], Mitsuhiro Terakawa[1], [1]*Keio University, Japan*

12:00 Lunch Time

Session 42. ***Room 3***

LPM: Surface treatment 3

Chair: Hongtao Ding, University of Iowa, USA

10:30 Fr3-L5 ***Student*** A120512

Dual-scale fabrication of broadband antireflective black metal surfaces based nanosecond laser and femtosecond laser, Rui Lou[1], *[1]State Key Laboratory of Transient Optics and Photonics, Xi'an Institute of Optics and Precision Mechanics, CAS, 710119 Xi'an, China*

10:50 Fr3-L6 ***Student*** A120878

Ablation characteristics of alumina and zirconia ceramics on ultra-short pulsed laser machining., Norbert Ackerl[1], Konrad Wegener[1], *[1]ETH Zurich, D-MAVT, Institute of Machine Tools and Manufacturing (IWF), Switzerland*

11:10 Fr3-L7 ***Invited*** A120227

From passive to active manipulation of the polarization states of light via metastructures, Ruwen Peng[1], *[1]National Laboratory of Solid State Microstructures, Nanjing University, China*

11:40 Fr3-L8 A120240

Laser induced modification of molybdenum disulphide nanoplatelet array, Romualdas Trusovas[1], Gediminas Račiukaitis[1], Gediminas Niaura[1], Arūnas Jagminas[1], *[1]Center for Physical Sciences and Technology, Lithuania*

12:00 Lunch Time

Session 45. ***Room 4***

HPL 11: Automotive

Chair: Kiyokazu Mori, The Graduate School for The Creation of New Photonics Industries, Japan

10:30 Fr4-H5 ***Invited*** A120398

Laser beam remote welding of lightweight aluminum construction for automotive industry, Jan-Philipp Weberpals[1], Daniel Boehm[1], Martin Sommer[1], Johann Hesse[2], *[1]AUDI AG, Neckarsulm, Germany, [2]AUDI AG, Ingolstadt, Germany*

11:00 Fr4-H6 ***Invited*** A120144

A completely new approach to fiber laser welding of automotive and e-mobility components., Peter Kallage[1], *[1]Coherent, Germany*

11:30 Fr4-H7 A120148

Laser welding of thin stainless steel parts using modified side-gas application for control of spatter and weld shape, Goran Jovic[1, 2], Axel Bormann[1], Johannes Pröll[1], Stefan Böhm[2], *[1]Robert Bosch GmbH, Germany, [2]Fachgebiet für trennende und fügende Fertigungsverfahren (tff), University of Kassel, Germany*

11:50 Fr4-H8 A120426

Development of laser cladding for TNGA engine, Kohei Yanaka[-1], Shingo Iwatani[-2], Natsuki Sugiyama[-2], Hironori Aoyama[-2], *[1]Toyota Motor Corporation, Raw Material Development Division No.2, Japan, [2]Toyota Motor Corporation, Production Engineering Development Division, Japan*

12:10 Lunch Time

Session 37. ***Hall "Himawari"***

LPM: SP3-3 "Laser processing of glass materials: current status, trends and future"

Chair: Tetsuo Kishi, Tokyo Institute of Technology, Japan

13:30 FrM-L1 ***Invited*** A122864

New insights to femtosecond laser induced ion migrations in multicomponent glass waveguides, Toney T. Fernandez[1], S. Gross[1], T. Gretzinger[1], A. Arriola[1], M. Withford[1], [1]*MQ Photonics Research Centre, Department of Physics and Astronomy, Macquarie University, Australia*

14:00 FrM-L2 A120169

Laser-induced generation of color centers in borosilicate glass as a way to control its chemical reactivity, Anton Serkov[1], Howard Snelling[1], [1]*University of Hull, United Kingdom*

14:20 FrM-L3 A120292

Direct laser writing of large scale photonic crystal spatial filters in glass using Bessel beams, Vytautas Purlys[1,2], Darius Gailevičius[1,2], Kestutis Staliunas[3,4], [1]*Femtika LTD, Lithuania,* [2]*Vilnius University Laser Research Center, Lithuania,* [3]*Departament de Física i Enginyeria Nuclear, Universitat Politècnica de Catalunya, Spain,* [4]*Institucio Catalana de Reserca i Estudis Avançats (ICREA), Spain*

14:40 FrM-L4 ***Student*** A120207

Fabrication of molybdenum carbide nanoparticles by femtosecond laser ablation in Hexane, Yoshiki Tanaka[1], Shusaku Terakawa[1], Xi Yu[1], Toru Asaka[1], Michiharu Ota[2], Fumihiro Itoigawa[1], Shingo Ono[1], [1]*Nagoya Institute of Technology, Japan,* [2]*IMRA America, Inc., Japan*

15:00 Coffee Break

Session 40. ***Room 2***

LPM: Medical and biological applications 2

Chair: Yasutaka Hanada, Hirosaki University, Japan

13:30 Fr2-L9 A120951

Three dimensional scaffolds made of electrospun polymers, Marco Götze[1], Tobias Kürbitz[2,3], Christian E.,H. Schmelzer[3], Andreas Heilmann[2,3], Georg Hillrichs[1], [1]*University of Applied Sciences Merseburg, Germany,* [2]*University of Applied Sciences Anhalt, Germany,* [3]*Fraunhofer Institute for Microstructure of Materials and Systems IMWS, Germany*

13:50 Fr2-L10 A120291

Modified channel structures activated on-chip high-speed manipulation of micro-objects by femtosecond laser impulse, Yaxiaer Yalikun[1], Zhen-Yi Hong[1], Kazunori Okano[1], Takanori Iino[2], Yoichiroh Hosokawa[1], [1]*Graduate School of Materials Science, Nara Institute of Science and Technology, Japan,* [2]*Department of Electrical Engineering and Information Systems, The University of Tokyo, Japan*

14:10 Fr2-L11 A120305

Femtosecond laser processed 4 μm thick glass filter for cell culturing, Yaxiaer Yalikun[1], Yoichiroh Hosokawa[1], [1]*Graduate School of Materials Science, Nara Institute of Science and Technology, Japan*

14:30 Coffee Break

Session 43. ***Room 3***

LPM: Surface treatment 4

Chair: Hai Xiao, Clemson University, USA

13:30 Fr3-L9 ***Invited*** A122546

Direct laser writing and direct laser interference patterning for surface modification in automotive, photovoltaic and life sciences", Udo Klotzbach[1], Volker Franke[1], Tim Kunze[1], Frank Sonntag[1], Andres Lasagni[1, 2], Christoph Leyens[1, 2], *[1]Fraunhofer IWS, Dresden, Germany, [2]Technische Universität Dresden, Germany*

14:00 Fr3-L10 A120340

New possibilities for direct laser interference patterning: Hierarchical, complex and non-symmetric textures for surface functionalization, Andrés Fabián Lasagni[1,2], Bogdan Voisiat[1], Tim Kunze[2], Sabri Alamri[2], Christoph Zwahr[1,2], Mikhael El-Khoury[1], Florian Rößler[1], *[1]Institut für Fertigungstechnik, Technische Universität Dresden, Germany, [2]Fraunhofer-Institut für Werkstoff- und Strahltechnik IWS, Germany*

14:20 Fr3-L11 A120314

Laser-silanization nanostructuring process for superwicking metal surfaces, Avik Samanta[1], Qinghua Wang[1], Scott Shaw[2], Farima Toor[3], Hongtao Ding[1], *[1]Department of Mechanical Engineering, University of Iowa, USA, [2]Department of Chemistry, University of Iowa, USA, [3]Department of Electrical & Computer Engineering, University of Iowa, USA*

14:40 Fr3-L12 A120193

Picosecond laser fabrication of the riblet-array surface texture on Ti64 alloy substrate, Xincai Wang[1], Yin Chi Wan[1], *[1]Singapore Institute of Manufacturing Technology, A*STAR, Singapore*

15:00 Coffee Break

Session 46. ***Room 4***

HPL 12: Additive Manufacturing 4

Chair: Christoph Leyens, Director, Fraunhofer Institute for Material and Beam Technology IWS, Germany

13:30 Fr4-H9 ***Invited*** A121892

Metallic additive manufacturing: Past present and future, Jyoti Mazumder[1], *[1]University of Michigan, USA*

14:00 Fr4-H10 Cancelled A122093

14:20 Fr4-H11 ***Student*** A120063

Selective laser melting printed NdFeB permanent magnet, Kai-Sheng Yu[1], Chung-Wei Cheng[2], Wen-Cheng Chang[3], An-Chen Lee[4], Mi-Ching Tsai[5], *[1]Department of Mechanical Engineering, National Chiao Tung University, Taiwan, [2]Department of Mechanical Engineering, National Chiao Tung University, Taiwan, [3]Department of Physics, National Chung Cheng University, Taiwan, [4]Department of Mechanical Engineering, National Chiao Tung University, Taiwan, [5]Department of Mechanical Engineering, National Cheng Kung University, Taiwan*

14:40 Fr4-H12 ***Student*** A120297

Effect of laser shock peening on corrosion properties of laser additive manufactured IN718 superalloy, Sagar Sarkar[1], Harikrishnan R[2], Muvvala Gopinath[1], Ashish Kumar Nath[1], *[1]Department of Mechanical Engineering, Indian Institute of Technology, Kharagpur, West Bengal, India, [2]Advanced Technology Development Centre, Indian Institute of Technology, Kharagpur, West Bengal, India, [3]Department of Mechanical Engineering, Indian Institute of Technology, Kharagpur, West Bengal, India, [4]Department of Mechanical Engineering, Indian Institute of Technology, Kharagpur, West Bengal, India*

15:00 Coffee Break

Session 47. ***Hall "Himawari"***

Joint Session (LPM+HPL)

Chair: Takashi Ishide, Mitsubishi Heavy Industries Ltd., Japan; JLPS President

15:30 FrM-J5 **Invited** A121317

High throughput femtosecond machining, Clemens Hönninger[1], Julien Pouysegur[1], Benoit Tropheme[1], Florent Basin[1], Martin Delaigue[1], Konstantin Mishchik[1], Eric Audouard[1], Eric Mottay[1], [1]*Amplitude Laser Group, France*

16:00 FrM-J6 **Invited** A122800

Recent developments in laser micro and macro processing, Christoph Leyens[1,2], Andreas Wetzig[1], Jens Standfuß[1], Udo Klotzbach[1], Frank Brückner[1,3], [1]*Fraunhofer IWS, Dresden, Germany,* [2]*Technische Universität Dresden, Institute of Materials Science, Dresden, Germany,* [3]*Luleå University of Technology, Luleå, Sweden*

16:30 FrM-J7 **Plenary** A122501

Synthetic optical holography, Paul Scott Carney[1], [1]*University of Rochester, United States*

Hall "Himawari"

Closing

Chair: Hiroyuki Niino, AIST, Japan

17:00 Outstanding Awards

Closing Remark

17:30 *close*

Poster Session

May 22, 10:30- Short Presentation for LPM Poster Session I & II (Room 1)

May 22, 11:20- Short Presentation for HPL Poster Session (Room 4)

May 22, 12:10 Poster Session I and Exhibition

May 23, 12:10 Poster Session II and Exhibition

The authors should be present in front of their posters during 12:10-13:50 on May 22 and May 23.

LPM

P-LPM1 A120265

Time-resolved imaging of laser induced cavitation bubble (LICB) dynamics by pulsed laser ablation in liquid phase, Hyeon Jin Jung[1], Seung Jun Lee[1], Seung Min Park[2], Myong Yong Choi[1], *[1]Department of Chemistry, Gyeongsang National University, South Korea, [2]Department of Chemistry, Kyung Hee University, South Korea*

P-LPM2 A120828

Dissociation of water under plasma of laser breakdown on nanoparticles, Ilya Baymler[1, 2], Sergey Gudkov[2], Ekaterina Barmina[2], Alexander Simakin[2], Georgiy Shafeev[2, 3], *[1]Moscow Institute of Physics and Technology, Russia, [2]Prokhorov General Physics Institute of the Russian Academy of Sciences, Moscow, Russia, [3]National Research Nuclear University MEPhI (Moscow Engineering Physics Institute), Russia*

P-LPM3 A122487

Laser ablation of liquids induced Se colloids: Phase transition and in-situ Raman monitoring, Jun Liu[1], *[1]Institute of Solid State Physics, CAS, China*

P-LPM4 A120779

Formation of elongated nanoparticles by laser ablation of gold target in aqueous solutions containing divalent ions, Margarita Zhilnikova[1,2], Kuder Ayyyzhy[1,2], Ekaterina Barmina[2], Georgy Shafeev[2,3], Oleg Urarov, *[1]The Federal State Educational Institution of Higher Professional Education, Moscow Institute of Physics and Technology (State University), Wave Research Center of Prokhorov General Physics Institute of the Russian Academy of Sciences, Russia, [2]Wave Research Center of Prokhorov General Physics Institute of the Russian Academy of Sciences, Russia, [3]National Research Nuclear University MEPhI, Russia*

P-LPM5 A120356

Femtosecond laser induced chiroptical properties in silica studied by transmission mueller-matrix spectroscopic ellipsometry, Jing Tian[1], Rubing Li[2], Enric Garcia-Caurel[3], Razvigor Ossikovski[3], Michel Stchakovsky[4], Celine Eypert[4], Bertrand Poumellec[1], Matthieu Lancry[1], *[1]Institut de Chimie Moléculaire et des Matériaux d'Orsay, UMR CNRS-UPS 8182, Université Paris Sud, Orsay, France, [2]Institute of Circular Economy, Beijing University of Technology, P. R. China, [3]Laboratoire de physique des interfaces et des couches minces, CNRS, Ecole Polytechnique, Palaiseau, France, [4]HORIBA Europe Research Center, Palaiseau, France*

P-LPM6 ***Student*** A120262

3D microfabrication of transparent thermoset polymer PDMS using laser-induced bubbles, Yuhei Miyahara[1], Yasutaka Hanada[1], *[1]Graduate school of Science and Technology, Hirosaki univ, Japan, [2]Graduate school of Science and Technology, Hirosaki univ, Japan*

P-LPM7 A120321

Study on condition monitoring for IoT in laser welding process, Masashi Oikawa[1], Naoki Kawada[2], *[1]Engineering and Technical Research Department, Japan Transport Engineering, Japan, [2]Engineering Department, Saitama Institute of Technology, Japan*

P-LPM8 ***Student*** A120964

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