



21 - 26 January 2012
Moscone Center
San Francisco, California United States

Conference 8243

Laser Applications in Microelectronic and Optoelectronic Manufacturing (LAMOM) XVII

Conference Program Track: **Laser Micro-/Nanoengineering** ()

[View Daily Schedule of Program Track](#)

Available in print as **Proceedings of SPIE Volume 8243**

Dates: **Monday-Thursday 23 - 26 January 2012**

Conference Chairs

Guido Hennig, Daetwyler Graphics AG (Switzerland); **Xianfan Xu**, Purdue Univ.; **Bo Gu**, IPG Photonics Corp. (China); **Yoshiki Nakata**, Osaka Univ. (Japan)

Program Committee

Craig B. Arnold, Princeton Univ.; **J. Thomas Dickinson**, Washington State Univ.; **Jan J. Dubowski**, Univ. de Sherbrooke (Canada); **Bruno Frei**, Solneva SA (Switzerland); **Sami T. Hendow**, Multiwave Photonics; **Andrew S. Holmes**, Imperial College London (United Kingdom); **Yongfeng Lu**, Univ. of Nebraska-Lincoln; **Michel Meunier**, Ecole Polytechnique de Montréal (Canada); **Andreas Michalowski**, Univ. Stuttgart (Germany); **Beat Neuenschwander**, Berner Fachhochschule Technik und Informatik (Switzerland); **Hiroyuki Niino**, National Institute of Advanced Industrial Science and Technology (Japan); **Alberto Piqué**, U.S. Naval Research Lab.; **Stephan W. Roth**, BLZ Bayerisches Laserzentrum GmbH (Germany); **Razvan Stoian**, Lab. Hubert Curien (France); **Koji Sugioka**, RIKEN (Japan)

[Show All Abstracts](#)

Monday 23 January

Opening Remarks

Date: **Monday 23 January**
Time: **8:15 AM - 8:20 AM**

Guido Hennig, Daetwyler Graphics AG (Switzerland)

Session 1: Direct Writing

Date: **Monday 23 January**
Time: **8:20 AM - 9:50 AM**

Session Chairs: **Xianfan Xu**, Purdue Univ.; **Hiroyuki Niino**, National Institute of Advanced Industrial Science and Technology (Japan)

Near-field nanopatterning on rough surfaces using optically trapped microspheres *(Invited Paper)*

Paper 8243-1

Time: **8:20 AM - 8:50 AM**

Author(s): Craig B. Arnold, Princeton Univ. (United States)

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Picosecond fiber laser microfabrication of THz wire-grid polarizers on polymer membrane substrates

Paper 8243-2

Time: **8:50 AM - 9:10 AM**

Author(s): Tim D. Gerke, Fianium Ltd. (United States); Dylan Fast, Vladimir Kozlov, Microtech Instruments, Inc. (United States)

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Laser direct writing of high refractive index polymer/TiO₂ nanocomposites

Paper 8243-3

Time: **9:10 AM - 9:30 AM**

Author(s): Qingchuan Guo, Reza Ghadiri, Cemal Esen, Olaf Medenbach, Andreas Ostendorf, Ruhr-Univ. Bochum (Germany)

[Show Abstract](#)

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Bimetallic grayscale photomasks written using flat-top beam vs. Gaussian beam

Paper 8243-4

Time: **9:30 AM - 9:50 AM**

Author(s): Reza Qarehbaghi, Glenn H. Chapman, Waris Boonyasiriwat, Simon Fraser Univ. (Canada)

[Show Abstract](#)

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Coffee Break 9:50 AM - 10:20 AM

Session 2: Fundamental Aspects of Laser-Material Interaction


Date: **Monday 23 January**
 Time: **10:20 AM - 12:20 PM**

Session Chairs: **Hiroyuki Niino**, National Institute of Advanced Industrial Science and Technology (Japan); **Xianfan Xu**, Purdue Univ.


Multiple interactions between an excimer laser beam and a ZnO single crystal target

Paper 8243-5
 Time: **10:20 AM - 10:40 AM**
 Author(s): Enam Khan, Steve Langford, J. Thomas Dickinson, Washington State Univ. (United States)
[Show Abstract](#) 

Optimization of the volume ablation rate for metals at different laser pulse-durations from ps to fs

Paper 8243-6
 Time: **10:40 AM - 11:00 AM**
 Author(s): Beat Neuenschwander, Beat Jaeggi, Marc Schmid, Urs Hunziker, Berner Fachhochschule Technik und Informatik (Switzerland)
[Show Abstract](#) 


Time-and space resolved microscopy of induced ablation with ultrashort laser pulses

Paper 8243-7
 Time: **11:00 AM - 11:20 AM**
 Author(s): Matthias Domke, Stephan Rapp, Gerhard Heise, Heinz P. Huber, Hochschule München (Germany)
[Show Abstract](#) 

Ultrafast coherent phonon excitation and non-thermal melting: a molecular dynamics study

Paper 8243-8
 Time: **11:20 AM - 11:40 AM**
 Author(s): Yaguo Wang, Xianfan Xu, Purdue Univ. (United States)
[Show Abstract](#) 

Control of multiphoton and avalanche ionization using a UV-IR pulse train in femtosecond laser micromachining of fused silica

Paper 8243-9
 Time: **11:40 AM - 12:00 PM**
 Author(s): Xiaoming Yu, Qiumei Bian, Baozhen Zhao, Kansas State Univ. (United States); Zenghu Chang, CREOL, The College of Optics and Photonics, Univ. of Central Florida (United States); Shuting Lei, Kansas State Univ. (United States)
[Show Abstract](#) 

Laser ablation plasmas for diagnostics of structured electronic and optical materials during or after laser processing

Paper 8243-10
 Time: **12:00 PM - 12:20 PM**
 Author(s): Rick Russo, Lawrence Berkeley National Lab. (United States); Alexander A. Bolshakov, Jong Yoo, Applied Spectra, Inc. (United States); Jhanis Gonzalez, Lawrence Berkeley National Lab. (United States)
[Show Abstract](#) 


Lunch Break 12:20 PM - 1:40 PM

Session 3: Laser Modification of Materials

Date: **Monday 23 January**
 Time: **1:40 PM - 3:10 PM**

Session Chairs: **Guido Hennig**, Daetwyler Graphics AG (Switzerland); **Bo Gu**, IPG Photonics Corp. (China)


Novel semiconductors and nanoscale patterning using pulsed lasers (Invited Paper) (Presentation Only)

Paper 8243-11
 Time: **1:40 PM - 2:10 PM**
 Author(s): Michael J. Aziz, Harvard Univ. (United States)
[Show Abstract](#) 

Annealing of sol-gel derived metal-oxide thin films by a UV laser pulse train

Paper 8243-12
 Time: **2:10 PM - 2:30 PM**
 Author(s): Jie Zhang, Panasonic Boston Lab. (United States)
[Show Abstract](#) 

F2 laser modification of silicone-coated polycarbonate for lightweight automobile window

Paper 8243-13
 Time: **2:30 PM - 2:50 PM**
 Author(s): Masayuki Okoshi, Yoshihiko Nojima, National Defense Academy (Japan); Hidetoshi Nojiri, RENIAS Co., Ltd. (Japan); Narumi Inoue, National Defense Academy (Japan)
[Show Abstract](#) 

Laser-induced transient stress distribution inside a single crystal by time-resolved birefringence imaging

Paper 8243-14

Time: **2:50 PM - 3:10 PM**

Author(s): Takaya Tochio, Masaaki Sakakura, Shingo Kanehira, Yasuhiko Shimotsuma, Kiyotaka Miura, Kazuyuki Hirao, Kyoto Univ. (Japan)

[Show Abstract](#)[Add to My Schedule](#)**Coffee Break** 3:10 PM - 3:40 PM**Session 4: Laser Nanoscale Materials Processing and Manufacturing: Joint Session with Conference 8245**Date: **Monday 23 January**Time: **3:40 PM - 6:00 PM**Session Chair: **Richard F. Haglund, Jr.**, Vanderbilt Univ.**Surface plasmon-assisted nanolithography with nanometric accuracy** (Invited Paper)

Paper 8243-15

Time: **3:40 PM - 4:10 PM**

Author(s): Kosei Ueno, Hokkaido Univ. (Japan)

[Show Abstract](#)[Add to My Schedule](#)**XPS study of InP/InGaAs/InGaAsP microstructure irradiated by KrF and ArF lasers in different environments**

Paper 8245-13

Time: **4:10 PM - 4:30 PM**

Author(s): Neng Liu, Khalid Moumanis, Sonia Blais, Jan J. Dubowski, Univ. de Sherbrooke (Canada)

[Show Abstract](#)[Add to My Schedule](#)**Designed near fields for parallel surface nanostructures**

Paper 8245-14

Time: **4:30 PM - 4:50 PM**

Author(s): Frank Hubenthal, Sören Maag, Abdul-Aleem Jamali, Bernd Witzigmann, Frank Träger, Univ. Kassel (Germany)

[Show Abstract](#)[Add to My Schedule](#)**Laser ablation and nano-material fabrication in supercritical fluids** (Invited Paper)

Paper 8243-16

Time: **4:50 PM - 5:20 PM**

Author(s): Ken-ichi Saitow, Hiroshima Univ. (Japan)

[Show Abstract](#)[Add to My Schedule](#)**Dynamics of TiO₂ nanoparticle formation and deposition for nanostructured thin films**

Paper 8245-15

Time: **5:20 PM - 5:40 PM**

Author(s): Jason Readle, Alex A. Puretzky, Christopher Rouleau, Oak Ridge National Lab. (United States); Rudresh Ghosh, Rene Lopez, The Univ. of North Carolina at Chapel Hill (United States); Gyula Eres, Murari Regmi, Oak Ridge National Lab. (United States); Gerd Duscher, The Univ. of Tennessee (United States); Mina Yoon, David B. Geohegan, Oak Ridge National Lab. (United States)

[Show Abstract](#)[Add to My Schedule](#)**Template-assisted metal nanoneedle/nanoprotrusion array fabrication at a sub-diffraction-limited scale**

Paper 8243-17

Time: **5:40 PM - 6:00 PM**

Author(s): Yuto Tanaka, Keio Univ. (Japan) and Harvard Univ. (United States); Jonathan D. B. Bradley, Eric Mazur, Harvard Univ. (United States); Minoru Obara, Keio Univ. (Japan)

[Show Abstract](#)[Add to My Schedule](#)**Tuesday 24 January****Session 5: Ultrafast Laser 3D-Fabrication: Joint Session with Conference 8247**Date: **Tuesday 24 January**Time: **8:20 AM - 10:10 AM**Session Chairs: **Yoshiki Nakata**, Osaka Univ. (Japan); **Beat Neuenschwander**, Berner Fachhochschule Technik und Informatik (Switzerland)**Applications of picosecond laser and pulse-burst in precision manufacturing** (Invited Paper)

Paper 8243-18

Time: **8:20 AM - 8:50 AM**

Author(s): Ralf Knappe, LUMERA LASER GmbH (Germany)

[Show Abstract](#)[Add to My Schedule](#)

High sensitive concentration analysis of biochemical liquids using a microfluidic chip fabricated by femtosecond laser

Paper 8243-19

Time: **8:50 AM - 9:10 AM**

Author(s): Yasutaka Hanada, Koji Sugioka, Katsumi Midorikawa, RIKEN (Japan)

[Show Abstract](#)[Add to My Schedule](#)**Ultrahigh precision surface structuring by synchronizing a galvo scanner with an ultrashort pulsed laser system in MOPA arrangement**

Paper 8243-20

Time: **9:10 AM - 9:30 AM**

Author(s): Beat Jaeggi, Beat Neuenschwander, Urs Hunziker, Thomas Meier, Markus Zimmermann, Karl-Heinz Selbmann, Ivan Gut, Berner Fachhochschule Technik und Informatik (Switzerland); Guido Hennig, Daetwyler Graphics AG (Switzerland)

[Show Abstract](#)[Add to My Schedule](#)**Three-dimensional silver nanostructure fabrication through multiphoton photoreduction**

Paper 8247-35

Time: **9:30 AM - 9:50 AM**

Author(s): Kevin Vora, Seung-Yeon Kang, Shobha Shukla, Eric Mazur, Harvard Univ. (United States)

[Show Abstract](#)[Add to My Schedule](#)**Material specific effects and limitations during ps-laser generation of micro structures**

Paper 8247-36

Time: **9:50 AM - 10:10 AM**

Author(s): Jens Hildenhagen, Klaus Dickmann, Uli Engelhardt, Marco Smarra, Fachhochschule Münster (Germany)

[Show Abstract](#)[Add to My Schedule](#)**Coffee Break** 10:10 AM - 10:40 AM**Session 6: Ultrafast Laser-induced Modification of Glasses or Transparent Materials: Joint Session with Conference 8247**Date: **Tuesday 24 January**Time: **10:40 AM - 12:10 PM**Session Chair: **Stefan Nolte**, Friedrich-Schiller-Univ. Jena (Germany)**Laser processing with ultrashort vortex pulses** (*Invited Paper*)

Paper 8243-22

Time: **10:40 AM - 11:10 AM**

Author(s): Cyril Hnatovsky, Vladlen G. Shvedov, Wieslaw Z. Krolikowski, Andrei V. Rode, The Australian National Univ. (Australia)

[Show Abstract](#)[Add to My Schedule](#)**Machining of glass and quartz using nanosecond and picosecond laser pulses**

Paper 8243-23

Time: **11:10 AM - 11:30 AM**

Author(s): David Ashkenasi, Tristan Kaszemeikat, Norbert Mueller, Andreas Lemke, Laser- und Medizin-Technologie GmbH, Berlin (Germany); Hans Joachim Eichler, Technische Univ. Berlin (Germany)

[Show Abstract](#)[Add to My Schedule](#)**Water assisted microhole drilling in fused silica using burst-train femtosecond laser pulses**

Paper 8247-37

Time: **11:30 AM - 11:50 AM**

Author(s): Takayuki Tamaki, Nara National College of Technology (Japan); Saeid Rezaei, Jianzhao Li, Peter R. Herman, Univ. of Toronto (Canada)

[Show Abstract](#)[Add to My Schedule](#)**Fabrication of photo-induced microstructure embedded inside ZnO crystal**

Paper 8243-24

Time: **11:50 AM - 12:10 PM**

Author(s): Yuichiro Ishikawa, Yasuhiko Shimotsuma, Akio Kaneta, Masaaki Sakakura, Masayuki Nishi, Kiyotaka Miura, Kazuyuki Hirao, Yoichi Kawakami, Kyoto Univ. (Japan)

[Show Abstract](#)[Add to My Schedule](#)**Lunch/Exhibition Break** 12:10 PM - 1:20 PM**Session 7: Ultrafast Laser Surface Processing: Joint Session with Conference 8247**Date: **Tuesday 24 January**Time: **1:20 PM - 3:00 PM**Session Chairs: **Beat Neuenschwander**, Berner Fachhochschule Technik und Informatik (Switzerland); **Yoshiki Nakata**, Osaka Univ. (Japan)

Comparison of picosecond and femtosecond laser ablation for surface engraving of metals and semiconductor

Paper 8243-25

Time: **1:20 PM - 1:40 PM**

Author(s): John Lopez, Rémi Torres, Anne Lidolff, Charly Loumena, ALPhANOV (France); Martin Delaigue, Clemens Hönninger, Eric Mottay, Sylvain Ricaud, Amplitude Systemes (France)

[Show Abstract](#)[Add to My Schedule](#)**Correlating texturing, milling, and scribing of ceramics and metals using ns and fs pulsed fiber lasers**

Paper 8243-26

Time: **1:40 PM - 2:00 PM**

Author(s): Sami T. Hendow, Multiwave Photonics (United States); Arzu M. Ozkan, Lumyn Technologies LLC (United States); Eric P. Mottay, Amplitude Systemes (France)

[Show Abstract](#)[Add to My Schedule](#)**Sub-wavelength multi-period ripple phenomena on stainless steel irradiated with high repetition rate femtosecond laser pulses**

Paper 8247-38

Time: **2:00 PM - 2:20 PM**

Author(s): Ladan E. Abolghasemi, Univ. of Toronto (Canada); Abbas Hosseini, FiLaser Inc. (Canada); Peter R. Herman, Univ. of Toronto (Canada)

[Show Abstract](#)[Add to My Schedule](#)**Structural changes of copper induced by high repetition rate femtosecond laser pulses**

Paper 8247-39

Time: **2:20 PM - 2:40 PM**

Author(s): Stéphane Valette, David Bruneel, Ecole Centrale de Lyon (France); Eric Audouard, Univ. Jean Monnet Saint-Etienne (France); Ronan Le Harzic, Fraunhofer-Institut für Biomedizinische Technik (Germany); Stéphane Benayoun, Ecole Centrale de Lyon (France)

[Show Abstract](#)[Add to My Schedule](#)**Femtosecond-laser-induced nanowires with very high aspect ratios at the surface fused silica**

Paper 8247-40

Time: **2:40 PM - 3:00 PM**

Author(s): Arnaud Royon, Gautier Papon, Mathieu Dumergue, Jean-Christophe Delagnes, Kevin Bourhis, Yannick Petit, Thierry Cardinal, Yannick Deshayes, Lionel S. Canioni, Univ. Bordeaux 1 (France)

[Show Abstract](#)[Add to My Schedule](#)**Coffee Break 3:00 PM - 3:30 PM****Session 8: Fundamentals and Diagnostics in Ultrafast Laser Processing: Joint Session with Conference 8247**Date: **Tuesday 24 January**Time: **3:30 PM - 5:40 PM**Session Chair: **Michel Meunier**, Ecole Polytechnique de Montréal (Canada)**Probing ultrafast laser-matter interactions with fs x-rays (Invited Paper)**

Paper 8243-27

Time: **3:30 PM - 4:00 PM**

Author(s): Klaus Sokolowski-Tinten, Univ. Duisburg-Essen (Germany)

[Show Abstract](#)[Add to My Schedule](#)**In and out of resonance plasmonics enhanced ultrafast laser nanoablation of surfaces**

Paper 8247-41

Time: **4:00 PM - 4:20 PM**

Author(s): Alexandre Robitaille, Étienne Boulais, Michel Meunier, Ecole Polytechnique de Montréal (Canada)

[Show Abstract](#)[Add to My Schedule](#)**Raman spectroscopy as a diagnostic means of sapphire dicing using ultrashort pulsed lasers**

Paper 8243-28

Time: **4:20 PM - 4:40 PM**

Author(s): Jiyeon Choi, Dongsig Shin, Yongkwon Cho, Jeong Suh, Korea Institute of Machinery & Materials (Korea, Republic of)

[Show Abstract](#)[Add to My Schedule](#)**Influence of pulse duration on the hole formation during short and ultrashort pulse laser deep drilling**

Paper 8247-42

Time: **4:40 PM - 5:00 PM**

Author(s): Sven Doering, Soeren Richter, Friedrich-Schiller-Univ. Jena (Germany); Andreas Tuennermann, Stefan Nolte, Friedrich-Schiller-Univ. Jena (Germany) and Fraunhofer Institute for Applied Optics and Precision Engineering (Germany)

[Show Abstract](#)[Add to My Schedule](#)**Direct investigation of the ablation rate evolution during laser drilling of high aspect ratio micro-holes**

Paper 8243-29

Time: **5:00 PM - 5:20 PM**

Author(s): Francesco P. Mezzapesa, Univ. degli Studi di Bari (Italy) and CNR-IFN UOS Bari (Italy); Teresa Sibillano, Lorenzo L. Colombo, CNR-IFN UOS Bari (Italy); Francesca Di Niso, Univ. degli Studi di Bari (Italy); Antonio Ancona, CNR-IFN UOS Bari (Italy); Maurizio Dabbicco, Univ. degli Studi di Bari (Italy) and CNR-IFN UOS Bari (Italy); Francesco De Lucia, Univ. degli Studi di Bari (Italy); Pietro M. Lugarà, Gaetano Scarmacio, Univ. degli Studi di Bari (Italy) and CNR-IFN UOS Bari (Italy)

[Show Abstract](#)[Add to My Schedule](#)**Real-time automatic depth control of laser processing at kilohertz rates**

Paper 8243-30

Time: **5:20 PM - 5:40 PM**

Author(s): Paul J. Webster, Kevin D. Mortimer, Joe X. Z. Yu, James M. Fraser, Queen's Univ. (Canada)

[Show Abstract](#)[Add to My Schedule](#)**Posters-Tuesday**Date: **Tuesday 24 January**Time: **6:00 PM - 8:00 PM**

Conference attendees are invited to attend the LASE & MOEMS-MEMS poster session on Tuesday evening. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions. Poster authors, view poster presentation guidelines and set-up instructions at <http://spie.org/x27476.xml>.

Development of laser-base application system with high precision and speed

Paper 8243-46

Author(s): Kwanghyun Ryu, Suk-hoon Shin, Hyeong-chan Park, Tae-sang Hwang, ASTJETEC Co., Ltd. (Korea, Republic of)

[Show Abstract](#)[Add to My Schedule](#)**Reproduction a unit of power of the laser radiation in compliance with the redefinition of the optical watt**

Paper 8243-47

Author(s): Jan A. Owsik, Military Univ. of Technology (Poland); Anatoly A. Liberman, Anatoly A. Kovalev, Sergey A. Moskalyuk, All-Russia Research Institute of Optical and Physical Measurements (Russian Federation); Anna Z. Rembielinska, LOT Polish Airlines (Poland)

[Show Abstract](#)[Add to My Schedule](#)**Nanostructure formation on lithium niobate surfaces by high-repetition rate sub-15-fs near-infrared laser pulses**

Paper 8243-48

Author(s): Martin H. Straub, Benjamin Weigand, Karsten König, Univ. des Saarlandes (Germany)

[Show Abstract](#)[Add to My Schedule](#)**Acoustic damage detection in laser-cut CFRP composite materials**

Paper 8243-49

Author(s): Michiteru Nishino, Advanced Laser and Process Technology Research Association (Japan); Yoshihisa Harada, Takayuki Suzuki, Hiroyuki Niino, National Institute of Advanced Industrial Science and Technology (Japan)

[Show Abstract](#)[Add to My Schedule](#)**Femtosecond laser doping and nanostructuring of silicon for photovoltaics**

Paper 8243-50

Author(s): Benjamin Franta, Meng-Ju Sher, Yu-Ting Lin, Katherine C. Phillips, Eric Mazur, Harvard Univ. (United States)

[Show Abstract](#)[Add to My Schedule](#)**Generation of new nanostructures in designed matrix by interfering femtosecond laser processing**

Paper 8243-51

Author(s): Kazuma Momoo, Yoshiki Nakata, Noriaki Miyana, Osaka Univ. (Japan)

[Show Abstract](#)[Add to My Schedule](#)**High aspect ratio of near-field nano-lens for deep nano-crater patterning**

Paper 8243-52

Author(s): Ichiro Fujimura, Mitsuhiro Terakawa, Keio Univ. (Japan)

[Show Abstract](#)[Add to My Schedule](#)**Wednesday 25 January****Session 9: Laser Surface Texturing / Polishing**Date: **Wednesday 25 January**Time: **8:50 AM - 9:50 AM**Session Chair: **Stephan W. Roth**, BLZ Bayerisches Laserzentrum GmbH (Germany)**Periodic nano trench structure fabricated by high speed scanning CW laser**

Paper 8243-31

Time: **8:50 AM - 9:10 AM**

Author(s): Satoru Kaneko, Takeshi Ito, Chihiro Kato, Satomi Tanaka, Kanagawa Industrial Technology Ctr. (Japan); Akira Matsuno, Takashi Nire, Phoetion Corp. (Japan); Mamoru Yoshimoto, Tokyo Institute of Technology (Japan)

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Tribological enhancement of surface properties by multi-scale femtosecond laser texturing: relation between laser treatment, topography, and wettability

Paper 8243-32

Time: **9:10 AM - 9:30 AM**

Author(s): Pavel Bizi-Bandoki, Stéphane Valette, Stéphane Benayoun, Ecole Centrale de Lyon (France); Eric Audouard, Univ. Jean Monnet Saint-Etienne (France)

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Laser polishing

Paper 8243-33

Time: **9:30 AM - 9:50 AM**

Author(s): Andre Temmler, RWTH Aachen (Germany); Edgar Willenborg, Fraunhofer-Institut für Lasertechnik (Germany)

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Coffee Break 9:50 AM - 10:20 AM

LASE Plenary Session

Date: **Wednesday 25 January**

Time: **10:20 AM - 12:30 PM**

Session Chairs: **Friedhelm Dorsch**, TRUMPF Werkzeugmaschinen GmbH + Co. KG (Germany); **Alberto Piqué**, U.S. Naval Research Lab. (USA)

10:20 am: **Welcome and Opening Remarks**, Friedhelm Dorsch, TRUMPF Werkzeugmaschinen GmbH + Co. KG (Germany); Alberto Piqué, U.S. Naval Research Lab. (USA)

10:25 am: **Presentation of the SPIE Technology Achievement Award to James J. Coleman**, Katarina Svanberg, Lund Univ. Hospital (Sweden)

10:30 am: **Announcement of the Green Photonics Award**, Stephen J. Eglash, Precourt Institute for Energy, Stanford Univ. (USA)

10:35 am: **Impact of Green Technology in Germany**, Matthias Machnig, Minister of Economy, Labour and Technology, German Federal State Thüringen (Germany)

10:45 am: **Plasmonics for Beam Shaping and Wavefront Engineering**, Federico Capasso, Harvard Univ. (USA)

11:20 am: **The National Ignition Facility and Progress Towards Inertial Fusion Ignition**, Edward I. Moses, Lawrence Livermore National Lab. (USA)

11:55 am: **Successful Technology Approach for Lasers in Manufacturing**, Peter Leibinger, TRUMPF GmbH & Co. KG (Germany)

Lunch/Exhibition Break 12:30 PM - 2:00 PM

Session 10: Laser Surface Texturing and 3D Microstructuring

Date: **Wednesday 25 January**

Time: **2:00 PM - 3:00 PM**

Session Chair: **Stefan Roth**, Leica Camera AG (Germany)

Formation of tribological structures by laser ablation

Paper 8243-34

Time: **2:00 PM - 2:20 PM**

Author(s): Niels Schilling, Mike Paschke, Udo Klotzbach, Fraunhofer IWS Dresden (Germany); Sami T. Hendow, Multiwave Photonics (Portugal)

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Laser-induced front side etching of commercial glasses with short and ultra-short laser pulses

Paper 8243-35

Time: **2:20 PM - 2:40 PM**

Author(s): Pierre Lorenz, Klaus Zimmer, Martin Ehrhardt, Anja Wehrmann, Leibniz-Institut für Oberflächenmodifizierung e.V. (Germany)

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Facile and flexible fabrication of gapless microlens arrays using a femtosecond laser microfabrication and replication process

Paper 8243-36

Time: **2:40 PM - 3:00 PM**

Author(s): Hwei Liu, Feng Chen, Xi'an Jiaotong Univ. (China)

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Coffee Break 3:00 PM - 3:30 PM

Session 11: Novel Laser Systems and Optics for Laser Micro/Nanomachining

Date: **Wednesday 25 January**
 Time: **3:30 PM - 5:50 PM**

Session Chairs: **Bo Gu**, IPG Photonics Corp. (China); **Guido Hennig**, Daetwyler Graphics AG (Switzerland)

Control of material properties by simultaneous photoexcitations at multiple light spots using a spatial light modulator *(Invited Paper)*

Paper 8243-37

Time: **3:30 PM - 4:00 PM**

Author(s): Masaaki Sakakura, Takaya Tochio, Masahiro Shimizu, Naomi Yasuda, Kyoto Univ. (Japan); Masatoshi Ohnishi, Qualtec Co. Inc. (Japan); Yasuhiko Shimotsuma, Kiyotaka Miura, Kazuyuki Hirao, Kyoto Univ. (Japan)

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Green line-shaped focus and multiple-foci parallel processing in photovoltaic and other applications on Si

Paper 8243-38

Time: **4:00 PM - 4:20 PM**

Author(s): Mikhail Ivanenko, Klaus Bagschik, Wyacheslav Grimm, Aliaksei Krasnaberski, LIMO Lissotschenko Mikroskopik GmbH (Germany)

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Investigation of micro lens multi spot generator for parallel micromachining of silicon with picosecond and nanosecond laser

Paper 8243-39

Time: **4:20 PM - 4:40 PM**

Author(s): Maik Zimmermann, Stephan W. Roth, BLZ Bayerisches Laserzentrum GmbH (Germany) and Erlangen Graduate School in Advanced Optical Technologies (Germany); Michael Schmidt, BLZ Bayerisches Laserzentrum GmbH (Germany) and Erlangen Graduate School in Advanced Optical Technologies (Germany) and Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany)

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Using acoustic energy for structuring light fields in laser processing and imaging *(Invited Paper)*

Paper 8243-40

Time: **4:40 PM - 5:10 PM**

Author(s): Marti Duocastella, Craig B. Arnold, Princeton Univ. (United States)

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New nanosecond Q-switched 213 and 224-nm lasers for fiber Bragg grating writing in hydrogen-free optical fibers

Paper 8243-41

Time: **5:10 PM - 5:30 PM**

Author(s): Mathieu Gagné, Raman Kashyap, Ecole Polytechnique de Montréal (Canada)

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Laser cutting of carbon fiber reinforced plastics (CFRP)

Paper 8243-42

Time: **5:30 PM - 5:50 PM**

Author(s): Hiroyuki Niino, Yoshizou Kawaguchi, Tadataka Sato, Aiko Narazaki, Ryozi Kurosaki, Yoshihisa Harada, National Institute of Advanced Industrial Science and Technology (Japan); Takahiro Nagashima, Zyunpei Kase, Masafumi Matsushita, Koichi Furukawa, Michiteru Nishino, Advanced Laser and Process Technology Research Association (Japan)

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Thursday 26 January**Session 12: Photovoltaics: Joint Session with Conference 8244**

Date: **Thursday 26 January**
 Time: **3:30 PM - 5:30 PM**

Session Chair: **Rainer Kling**, Laser Zentrum Hannover e.V. (Germany)

Structuring of functional thin films and surfaces with picosecond-pulsed lasers *(Invited Paper)*

Paper 8243-43

Time: **3:30 PM - 4:00 PM**

Author(s): Gediminas Raciukaitis, Paulius Gecys, Mindaugas Gedvilas, Bogdan Voisiat, Ctr. for Physical Sciences and Technology (Lithuania)

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Laser sintering of Si and Ge nano- and microparticle films toward solar cells by solution process

Paper 8244-31

Time: **4:00 PM - 4:20 PM**

Author(s): Akira Watanabe, Tohoku Univ. (Japan)

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Laser processes for future solar cells *(Invited Paper)*

Paper 8243-44

Time: **4:20 PM - 4:50 PM**

Author(s): Andreas Letsch, Robert Bosch GmbH (Germany)

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Selective ablation of thin films in latest generation CIGS solar cells with picosecond pulses

Paper 8243-45

Time: **4:50 PM - 5:10 PM**

Author(s): Andreas Burn, Martin Muralt, Berner Fachhochschule Technik und Informatik (Switzerland); Reiner Witte, Bruno Frei, Solneva SA (Switzerland); Stephan Bücheler, EMPA (Switzerland); Valerio Romano, Berner Fachhochschule Technik und Informatik (Switzerland)

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High quality micro-machining using ultracompact picosecond lasers

Paper 8244-32

Time: **5:10 PM - 5:30 PM**

Author(s): Oliver Haupt, Stefan Spiekermann, Ingo Freitag, InnoLight GmbH (Germany)

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