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# ***Laser-based Micro- and Nanoprocessing XI***

**Udo Klotzbach  
Kunihiko Washio  
Rainer Kling**  
*Editors*

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# Contents

- vii *Authors*  
ix *Conference Committee*  
xi *Introduction*

---

## **SESSION 1 LASER MICRO STRUCTURING AND PROCESSING I**

---

- 10092 04 **Ultrafast lasers for precise and corrosion free marking on chirurgical steels** [10092-3]  
10092 05 **Laser micromachining strategies for transparent brittle materials using ultrashort pulsed lasers** [10092-4]  
10092 06 **Surface processing of stainless steel with high-energy picosecond laser pulses with an elliptical focus** [10092-5]

---

## **SESSION 2 LASER MICRO STRUCTURING AND PROCESSING II**

---

- 10092 07 **Micro and nano-biomimetic structures for cell migration study fabricated by hybrid subtractive and additive 3D femtosecond laser processing (Invited Paper)** [10092-6]  
10092 0A **Tunable hydrophobicity assisted by light-responsive surface micro-structures** [10092-9]

---

## **SESSION 3 LASER MICRO STRUCTURING AND PROCESSING III**

---

- 10092 0B **Femtosecond laser nano/microfabrication via three-dimensional focal field engineering (Invited Paper)** [10092-10]  
10092 0D **Structural modification of gallium lanthanum sulfide glass induced by ultrafast laser inscription** [10092-12]  
10092 0E **Process and parameter optimisation for micro structuring of 3D freeform metallic surfaces: a comparative study of short-pulse (nanosecond) and ultrafast (picosecond, femtosecond) laser ablation** [10092-60]  
10092 0F **Fabrication and assembling of a microfluidic optical stretcher polymeric chip combining femtosecond laser and micro injection molding technologies** [10092-13]

---

## **SESSION 4 ADVANCED LASER STRUCTURING FOR ENERGY STORAGE AND CONVERSION I**

---

- 10092 0I **Patterning of organic photovoltaic on R2R processed thin film barriers using IR laser sources (Invited Paper)** [10092-16]

- 10092 OJ **Roll-to-roll suitable short-pulsed laser scribing of organic photovoltaics and close-to-process characterization** [10092-17]
- 10092 OL **Fabrication and characterization of silicon-based 3D electrodes for high-energy lithium-ion batteries** [10092-19]
- 10092 OM **Laser processing of thick Li(NiMnCo)O<sub>2</sub> electrodes for lithium-ion batteries** [10092-20]

---

**SESSION 5 LASER NANO STRUCTURING AND PROCESSING**

---

- 10092 ON **Applications of laser-induced periodic surface structures (LIPSS) (Invited Paper)** [10092-21]
- 10092 OP **Laser direct writing of carbon/Au composite electrodes for high-performance micro-supercapacitors** [10092-23]

---

**SESSION 6 ADVANCED LASER STRUCTURING FOR ENERGY STORAGE AND CONVERSION II**

---

- 10092 OR **Photonic nanomanufacturing of high performance energy device on flexible substrate (Invited Paper)** [10092-25]
- 10092 OS **Investigation of micro-structured Li(Ni<sub>1/3</sub>Mn<sub>1/3</sub>Co<sub>1/3</sub>)O<sub>2</sub> cathodes by laser-induced breakdown spectroscopy** [10092-26]
- 10092 OT **Direct laser interference patterning of metallic sleeves for roll-to-roll hot embossing** [10092-27]

---

**SESSION 7 DIRECT WRITE PROCESSING, ABLATION, AND SURFACE MODIFICATION I**

---

- 10092 OU **Producing nanoscale laser spot for heat-assisted magnetic recording (Invited Paper)** [10092-28]
- 10092 OX **Formation of porous networks on polymeric surfaces by femtosecond laser micromachining** [10092-31]
- 10092 OZ **Selective metallization based on laser direct writing and additive metallization process** [10092-33]

---

**SESSION 8 LARGE AREA MICRO/NANO STRUCTURING, LASER INTERFERENCE PATTERNING I**

---

- 10092 11 **Direct laser interference patterning, 20 years of development: from the basics to industrial applications** [10092-35]
- 10092 12 **Line-shaped femtosecond laser pulses for large-area machining (Invited Paper)** [10092-36]
- 10092 13 **Ultrashort pulse laser-induced texturing of stainless steel at 1 MHz and high average power: impact of process parameters** [10092-37]

10092 14 **Development of a scanner-based direct laser interference patterning optical head: new surface structuring opportunities** [10092-38]

10092 15 **Power and pulse energy scaling for high-volume UV-laser microprocessing** [10092-39]

---

**SESSION 9 LARGE AREA MICRO/NANO STRUCTURING, LASER INTERFERENCE PATTERNING II**

---

10092 18 **Plasmonically enhanced 3D laser lithography for high-throughput nanoprecision fabrication** [10092-42]

10092 19 **Direct laser interference patterning of transparent and colored polymer substrates: ablation, swelling, and the development of a simulation model** [10092-43]

---

**SESSION 10 HIGH SPEED LASER BEAM ENGINEERING SYSTEMS FOR HIGH POWER ULTRA SHORT PULSED LASER**

---

10092 1C **Ultra-short pulse laser micro patterning with highest throughput by utilization of a novel multi-beam processing head** [10092-46]

10092 1D **Influence of solvent mixture on the ablation rate of iron using femtosecond laser pulses** [10092-47]

---

**SESSION 11 DIRECT WRITE PROCESSING, ABLATION, AND SURFACE MODIFICATION II**

---

10092 1F **Laser surface preparation for adhesive improvement of Ti6Al4V** [10092-49]

10092 1G **High throughput laser texturing of super-hydrophobic surfaces on steel** [10092-50]

10092 1H **Study of TLIPSS formation on different metals and alloys and their selective etching** [10092-51]

10092 1I **Functionalised polyurethane for efficient laser micromachining** [10092-52]

10092 1J **Recoverable stress induced two-way shape memory effect on NiTi surface using laser-produced shock wave** [10092-71]

---

**POSTER SESSION**

---

10092 1K **High-aspect ratio laser drilling of glass assisted by supercritical carbon dioxide** [10092-53]

10092 1P **Nanostructuring of sapphire using time-modulated nanosecond laser pulses** [10092-58]

10092 1R **Extension of incubation models to moving surfaces irradiated by ultra-short pulse lasers** [10092-61]

10092 1T **Fresnel calculation of holograms for micrometer-scale material structuring on substrates with complex surface topography** [10092-63]

- 10092 1U **Evaluation of Bessel beam machining for scalable fabrication of conductive channels through diamond** [10092-64]
- 10092 1W **Laser cutting and drilling with zero conicity** [10092-66]
- 10092 1X **Reducing graphene-metal contact resistance via laser nano-welding** [10092-67]
- 10092 2I **Laser shock wave assisted patterning on NiTi shape memory alloy surfaces** [10092-72]

# Authors

Numbers in the index correspond to the last two digits of the six-digit citation identifier (CID) article numbering system used in Proceedings of SPIE. The first four digits reflect the volume number. Base 36 numbering is employed for the last two digits and indicates the order of articles within the volume. Numbers start with 00, 01, 02, 03, 04, 05, 06, 07, 08, 09, 0A, 0B...0Z, followed by 10-1Z, 20-2Z, etc.

Aalderink, Dennis, 04  
Akkerman, H. B., 0I  
Alal, Orhan, 1J  
Alamri, Sabri, 14, 19  
Albrecht, Hans-Stephan, 15  
Ancona, Antonio, 0F  
Angelini, A., 0A  
Assaf, Youssef, 0X  
B. S. Sampaio, Daniel J., 0E  
Babin, Sergey A., 1H  
Baselt, Tobias, 1T  
Bayer, L., 1P  
Bernard, Benjamin, 05  
Bieda, Matthias, 1I  
Boarino, L., 0A  
Bonse, Jörn, 0N  
Bragin, Igor, 15  
Braunschweig, Robert, 1W  
Brodie, G. W. J., 1I  
Brüning, Stephan, 1C  
Budnicki, Aleksander, 04  
Cai, Jinguang, 0P, 0Z  
Canfield, Brian K., 1U  
Chen, Min, 0R  
Cherif, M., 1F  
Datta, Anurup, 0U  
Davis, Lloyd M., 1U  
De Leo, N., 0A  
Delmdahl, Ralph, 15  
Descrovi, Emiliano, 0A  
Diener, Romina, 0D  
Dijoux, Mathieu, 1W  
Dostovalov, Alexandr V., 1H  
Ducharme, S., 1X  
Dultsev, Fedor N., 1H  
Eckhardt, Sebastian, 1I  
Ehrhardt, M., 1P  
Er, Ali O., 1J, 2I  
Estival, Sébastien, 1W  
Epperlein, Nadja, 0N  
Faisst, Birgit, 04  
Fassi, Irene, 0F  
Faucon, Marc, 1G  
Ferrarese Lupi, F., 0A  
Fledderus, Henri, 0I, 0J  
Fraggelakis, F., 13  
Frascella, F., 0A  
Friedrich Schilling, N., 0I  
Gachot, Carsten, 1I  
Gemini, Laura, 1G  
Gong, Qihuang, 0B  
Graf, Thomas, 06  
Grant, Byron, 1J, 2I  
Günther, Denise, 1I  
Gurevich, Evgeny L., 1D  
Hans, Michael, 1I  
Hartmann, Peter, 1T  
Hasegawa, Satoshi, 12  
Haupt, Oliver, 15  
Hayasaki, Yoshio, 12  
Höhm, Sandra, 0N  
Homburg, Oliver, 1C  
Hoppius, Jan S., 1D  
Hou, Tingxiu, 0R  
Hu, Anming, 0R  
Huang, X., 1X  
Jarczynski, Manfred, 1C  
Jin, J., 1I  
Jonušauskas, Linas, 18  
Jumel, J., 1F  
Kabardiadi-Virkovski, Alexander, 1T  
Kang, H., 1I  
Kanitz, Alexander, 1D  
Karaca, Haluk E., 1J, 2I  
Kawano, Hiroyuki, 07  
Keramatnejad, K., 1X  
Kholikov, Khomidkhodza, 1J, 2I  
Kietzig, Anne-Marie, 0X, 1R  
Kirner, Sabrina V., 0N  
Kling, Rainer, 13, 1F, 1G  
Klotzbach, Udo, 0I, 0J  
Korolkov, Victor P., 1H  
Krüger, Jörg, 0N  
Krupop, Benjamin, 14  
Kuntze, Thomas, 0J  
Kunze, Tim, 1I, 14  
Kupisiewicz, Axel, 1W  
Lang, Valentin, 0T, 1I  
Lasagni, Andrés Fabián, 0T, 1I, 14, 19, 1T  
Laygue, Pierre, 1W  
Li, D. W., 1X  
Li, Peizhen, 1J, 2I  
Li, Ruozhou, 0R  
Li, Yan, 0B  
Liu, Lipu, 0B  
Lopez, J., 13  
Lorenz, P., 1P  
Loumena, C., 1F

Lu, Y. F., 1X  
 Lv, Chao, 0P  
 MacMillan, F. J., 1I  
 Malinauskas, Mangirdas, 18  
 Manek-Hönniger, Inka, 13  
 Mangang, Melanie, 0E  
 Martin, Paul-Etienne, 1W  
 Martínez Vázquez, Rebeca, 0F  
 Matus, Luke, 1R  
 Matylytsky, Victor, 05  
 Maurer, Erich, 04  
 Midorikawa, Katsumi, 07  
 Minardi, Stefano, 0D  
 Mincuzzi, G., 13  
 Mitra, Thomas, 1C  
 Mücklich, Frank, 11  
 Nemykin, Anton V., 1H  
 Neugebauer, Christoph, 04  
 Nolte, Stefan, 0D  
 Okotrub, Konstantin A., 1H  
 Osellame, Roberto, 0F  
 Ostendorf, Andreas, 1D  
 Pflöging, Wilhelm, 0E, 0M, 0S  
 Pirani, F., 0A  
 Rabiee Golgir, H., 1X  
 Rakebrandt, J.-H., 0M, 0S  
 Rank, Andreas, 0T  
 Ricciardi, S., 0A  
 Rimšelis, Gabrielius, 18  
 Rizzo, R., 0A  
 Roch, Teja, 11  
 Romoli, Luca, 1G  
 Rosenfeld, Arkadi, 0N  
 Rosenkranz, Andreas, 11  
 Rößler, Florian, 14  
 Salem, A., 0I  
 Scholz, Steffen G., 0E  
 Seifert, H. J., 0M, 0S  
 Serien, Daniela, 07  
 Seyitliyev, Dovletgeldi, 1J, 21  
 Sima, Felix, 07  
 Simpson, M. C., 1I  
 Smyrek, P., 0M, 0S  
 Song, J. F., 1X  
 Spaltmann, Dirk, 0N  
 Sugioka, Koji, 07  
 Tabacchi, Gloria, 0D  
 Taleb Ali, M., 1F  
 Terentiev, Vadim S., 1H  
 Thomas, Zachary, 1J  
 Trinh, Kim E., 11  
 Trotta, Gianluca, 0F  
 Varapnickas, Simonas, 18  
 Volpe, Annalisa, 0F  
 Wang, Shutong, 0R  
 Watanabe, Akira, 0P, 0Z  
 Weber, Rudolf, 06  
 Wollmann, Philipp, 0J  
 Wu, Dong, 07  
 Xu, Jian, 07  
 Xu, Xianfan, 0U  
 Yang, Dong, 0B  
 Yang, Hong, 0B  
 Yoshiki, Keisuke, 1K  
 Yu, Yongchao, 0R  
 Zagoranskiy, I., 1P  
 Zahedi, Ehsan, 06  
 Zhang, Qian, 0B  
 Zheng, Y., 0M, 0S  
 Zhou, Y. S., 1X  
 Zimmer, K., 1P  
 Zwahr, Christoph, 14

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- 3 Laser Micro Structuring and Processing III  
**Rainer Kling**, ALPhANOV (France)
- 4 Advanced Laser Structuring for Energy Storage and Conversion I  
**Wilhelm Pfleging**, Karlsruhe Institute of Technology (Germany)
- 5 Laser Nano Structuring and Processing  
**Andrés-Fabián Lasagni**, TU Dresden (Germany)
- 6 Advanced Laser Structuring for Energy Storage and Conversion II  
**Haibin Zhang**, Electro Scientific Industries, Inc. (United States)
- 7 Direct Write Processing, Ablation, and Surface Modification I  
**Kunihiko Washio**, Paradigm Laser Research Ltd. (Japan)
- 8 Large Area Micro/Nano Structuring, Laser Interference Patterning I  
**Chunlei Guo**, University of Rochester (United States)  
**Yongfeng Lu**, University of Nebraska-Lincoln (United States)
- 9 Large Area Micro/Nano Structuring, Laser Interference Patterning II  
**Antonio Ancona**, CNR-Istituto di Fotonica e Nanotecnologie (Italy)

- 10 High Speed Laser Beam Engineering Systems for High Power Ultra Short Pulsed Laser  
**Yasuhiro Okamoto**, Okayama University (Japan)
- 11 Direct Write Processing, Ablation, and Surface Modification II  
**Akira Watanabe**, Tohoku University (Japan)



## Introduction

Research in laser-based micro- and nanoprocessing has great potential for a broad range of application across various sectors including mechanical engineering, photonics and electrical engineering, vehicle and aerospace component manufacturing, and other functional device manufacturing industries. Furthermore, both the medical device and biotechnology industries benefit from micro- and nanoprocessing components to enter new markets for the coming years.

The conference "Laser-based Micro- and Nanoprocessing XI" (for historical reasons, LBMP XI for short) was held 31 January – 2 February, as a part of LASE 2017 at Photonics West in San Francisco, California, United States. This volume contains both invited and contributed papers from Austria, Belgium, Brazil, Canada, China, France, Germany, Italy, Japan, Lithuania, Netherlands, New Zealand, Romania, the Russian Federation, Sweden, and the United States.

Our conference focused on transitioning research and development results into different applications. We saw increasing demand for innovations in nano- and microsystem technologies, beam propagation and shaping to support product development in mechanical engineering, photonics and electrical engineering, bio- and medical device engineering industries, etc. Laser technology in particular offered great potential with ultrashort pulse lasers and highly dynamic and high-speed laser beam control systems for a diverse range of applications.

We would like to highlight innovations in processing including large area micro/nano structuring, laser interference patterning, roll-to-roll processing, hybrid additive and subtractive processing, direct write processing, ablation and surface modification, such as for high performances energy-storage devices, flexible photovoltaics and wearable smart electronic devices, etc.

With the global micro-technology companies increasingly focused on biomedical device products, the biomedical/health industry sector remain for many the primary target market. The trend toward ever more miniaturized systems continues; and the technical possibilities with laser-based micro- and nanoprocessing still offer much room to be exploited to move ideas toward products.

For example, solutions were offered to create micro- and nano-biomimetic structures for cell migration studies. These structures were fabricated by hybrid subtractive and additive 3D femtosecond laser processing or high throughput laser texturing of antibacterial surfaces on steel or implants.

We would like to express our deepest gratitude to the program committee members and the SPIE technical staff for their great efforts during planning and organization of LBMP XI. We would also like to thank the invited speakers

and presenters of the contributed papers for their contribution to the success of this conference.

**Udo Klotzbach  
Kunihiko Washio  
Rainer Kling**