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Laser-based Micro- and Nanoprocessing XI

**Udo Klotzbach
Kunihiko Washio
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Editors

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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.

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Rainer Kling**