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Editors

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11 Advanced 1D to 3D Subtractive and Additive Process
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Introduction

The Laser-based Micro- and Nanoprocessing conference brings together researchers and engineers from scientific and academic institutions and industry in order to provide a platform for mutual and fruitful discussion on application-oriented, cutting-edge research fields. The scope of relevant applications covers the fabrication of electronic, photonic, mechanical, chemical, bio-active, and bio-compatible devices. Because of the strong economic demands, laser materials processing is playing increasingly important roles in areas covered by the LBMP conference.

Advanced laser-based processes for micro- and nano-processing are strongly demanded by high-tech industries for specialized prototypes and high throughput devices with micro- and nanostructures to realize electronic, photonics, mechanical, fluidic, chemical, and biological functionalities. However, the realization of such prototypes and devices for industrial manufacturing imposes new challenges for laser sources and beam propagation and beam modifications.

The laser-induced modification of material properties at micro- or nano scales becomes more and more important in industrial applications where undesired material and surface modification such as chemical or heat-affected structural change must be avoided. Decrease the production costs or significant changes of established production lines are the challenges for the future industrial implementation. Therefore, both high-performance new products and innovations for high efficiency/high-throughput manufacturing and assembly technologies are the focus of the conference.

The conference LBMP XIII was held on 5-7 February as a part of LASE 2019 at Photonics West in San Francisco, California. LBMP-XIII comprised around 60 presentations and posters which were presented by speakers from Belgium, China, France, Germany, Italy, Japan, Netherland, Lithuania, Singapore, Spain, Turkey, UK, and USA. Presentations represented a wide number of topics including: laser micro- and nano processing, ultrashort pulsed laser processing, direct-write processing and surface-modification, beam modification and additive manufacturing.

Laser-based micro- and Nano processing were highlighted in sessions with micro- and nano- processing of several kinds of materials and high speed laser beam engineering systems talks. All sessions included topics very interesting for many scientific communities at universities and research institutes. At the same time, many industrial applications have a background of micro- and nano processing or optical background.

We would like to express our deepest gratitude to the program committee members and the SPIE technical staff for their great efforts during the planning and organization of LBMP-XIII We would also like to thank the invited speakers and presenters of the contributed papers for their contribution to the success of this conference. All the manuscripts were reviewed to ensure the quality of the conference proceedings.

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Akira Watanabe
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