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Laser Applications in Microelectronic and Optoelectronic Manufacturing XV

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Introduction

For 15 years, San Jose, California, was a meeting place where researchers and students from universities, as well as government and industrial laboratories working in the area of lasers as tools for processing and diagnostics of materials, fabrication of thin films, or involved in the development of lasers, gathered in the frame of the Laser Applications in Science and Engineering (LASE) symposia at Photonics West. In 1995, the conference Laser Induced Thin-Film Processing conference, chaired by Jan J. Dubowski, signalled that Photonics West had attracted the attention of the research community involved in laser processing materials (Proceedings of SPIE Volume 2403). One year later, in 1996, Jan J. Dubowski and Jyotirmoy Mazumder chaired in San Jose the first conference on Laser Applications in Microelectronic and Optoelectronic Manufacturing. This conference (Proceedings of SPIE Volume 2703) paved the road to a series of meetings known as LAMOM. Back then, the topics of LAMOM were largely dominated by research related to pulsed laser deposition (PLD) of thin films that was happening on the tail of the intensive study of PLD for high-temperature superconducting thin films. New applications saw the laser being used, e.g., for surface processing of materials at the micro- and nano-scale and the implementation of the results of this research in industrial processes. It is micro-scale processing and 'soft' interaction of the laser with materials that likely are the two most distinctive features addressed by the LAMOM conferences. These include ultrafast laser processing, direct write processing, and laser-assisted processing, such as laser etching and three-dimensional microstructuring of materials used by electronic, photonic, and aerospace industries. Over the years, this series of meetings kept growing and in 2002, in addition to LAMOM-VII, a sister conference on Laser-based Packaging in Microelectronics and Photonics (LPMP) was spun-off and chaired by Jan J. Dubowski and Willem Hoving. The laser has shown again to be an attractive tool enabling engineers to overcome some shortcomings of the materials or conventional tools used for the manufacturing of integrated electronic, and especially, photonic integrated devices. The materials of LAMOM-VII and LPMP-I were published in a joint proceedings titled Photon Processing in Microelectronics and Photonics (Proceedings of SPIE Volume 4637). In 2003, yet another sister conference on Synthesis and Photonics of Nanoscale Materials (SPnsM) was spun-off from LAMOM and chaired by David B. Geohegan, Frank Träger, and Kouichi Murakami. The materials of LAMOM-VIII, LPMP-II, and SPnsM were published in a joint proceedings, Photon Processing in Microelectronics and Photonics II (Proceedings of SPIE Volume 4977). Consequently, proceedings of LAMOM-IX to LAMOM-XIV can be found in SPIE Volumes 5339, 5713, 6106, 6458, 6879 and 7201, respectively.

The 2010 LAMOM-XV conference marks an important milestone, not only due to the round number of the meeting, but also because, for the first time, this conference has been organized in San Francisco, California. This series has

established itself as an important forum, attracting year after year representatives of the international laser research community to present and discuss their research results. The conference, the Photonics West Exhibition, and the amicable environment of Photonics West have played an important role in stimulating the research discussions and enhancing the social interaction between participants. We hope this trend will continue in the future. The success of LAMOM would have not been possible without the contribution provided by the conference and session chairs and members of the program committees - please see the respective SPIE Proceedings volumes for the full list of names. We thank them all for their enthusiasm and committing part of their research time (not always easy to find) to this success. Our special thanks also go to the members of the SPIE technical staff (current and past) who have helped in the organization of the infrastructure supporting the LAMOM meetings.

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