

Preface from the guest editor

Since the inauguration of the E-MRS symposium series on 'Photon-based Material Processing' back in 1983, the number of optical-based techniques applied to process materials and the capabilities of optical systems has continued to expand and improve beyond simple pulsed laser deposition of thin films. In turn, the scope of materials being investigated has also increased from oxide ceramics to include alloys, polymers and biomaterials. Many of the most exciting areas are presented in this volume that contains both invited and contributed papers presented at the 2003 European Materials Research Society Spring Meeting in symposium H; *Photonic Processing of Surfaces, Thin Films and Devices*. There were 120 papers submitted from the 160 presentations in Strasbourg. Among the 160 contributions, 13 were invited, and 48 were presented orally. The wide spectrum of presentations and submitted papers represent very well the great variety of processes that are initiated by photons. The contributions range from macroscopic applied studies, such as laser cladding and concrete cutting, to microscopic thin film deposition techniques and the application of state of the art laser systems, i.e. femtosecond laser systems. One complete day of this symposium was devoted to the application of ultrashort laser pulses that can be used for various applications, such as spectroscopy, thin film growth, clusters and shock wave formation and general material processing. Another emerging research field is the combination of photonic processes with biological, biochemical or medical science. The symposium revealed again that photonic material processing is truly an interdisciplinary field covering many basic and applied aspects of physics, chemistry, biology and even medicine, with a special emphasis on the interaction time; from femtoseconds to quasi-continuous in experiment and theory. The symposium had individual sessions that addressed specific areas of strong research activity, i.e. surface modification of polymers and biomaterials, pulsed laser deposition and related techniques, surface processing, femtosecond processing and plasma and spectroscopic studies.

This conference proceedings contains 110 papers that were all reviewed by at least two referees. As the guest editor I am grateful to all referees, especially to those who submitted their reports on time, for their work. I would like to thank Markus Kuhnke for helping me with the task of interacting with the authors, referees and finishing our work on time. The organizers were grateful for the high quality of the contributions presented as well as support from TUILASER AG, LASER 2000, QUANTEL and GMP.

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