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Ion Beams and Nano-Engineering

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Symposium held April 14–17, 2009, San Francisco, California, U.S.A.

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PREFACE

This volume contains papers presented at Symposium DD, "Ion Beams and Nano-Engineering," held April 14–17 at the 2009 MRS Spring Meeting in San Francisco, California.

Ion beam techniques provide unique capabilities for exploring and custom-tailoring the properties, structure, interactions, and configuration of polymeric materials, biomolecular materials, and bio-compatible materials. New understanding of ion beam-matter interactions, and new facilities for precision ion beam processing now enable applications ranging from nano-fabrication, nano-patterning and high resolution resist lithography, and nanoparticle self assembly, to selective activation of surfaces, manipulation of cells, fabrication of bio-compatible materials and fabrication of structures for 3D structures. Such facilities enable advanced development of coatings and structures displaying engineered mechanical, optical, electronic, magnetic and chemical properties. Ion beam characterization techniques also offer new options involving high spatial resolution, ppb elemental sensitivity, and sub-micro-beam imaging. The presentations during this symposium and manuscripts in this proceedings deal with current and emerging applications of ion beam techniques.

Finally, the organizers acknowledge that the success of Symposium DD depended critically on the full participation of excellent researchers and scientists as well as graduate students. The organizers are also extremely grateful to MRS for making this symposium possible through its dedicated work before, during and following the Meeting, and to the volunteer students who kindly assisted with audio and video during the sessions. We also thank NASA (USA), NIMS (Japan), AAMURI (USA), and National Electrostatics Corporation for their generous and substantial financial support.

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