

# PROCEEDINGS OF SPIE

## ***Micro- and Nanotechnology Sensors, Systems, and Applications III***

**Thomas George  
M. Saif Islam  
Achyut K. Dutta**  
*Editors*

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## Introduction

The 2011 Micro- and Nanotechnology Sensors, Systems, and Applications III conference highlighted recent, cutting-edge developments in a number of diverse topical areas including: Dip-pen Nanolithography, Advanced Nanoscale Materials Systems, Micro/Nanotechnology for mm-Wave/TeraHertz for Security Applications, TeraHertz Characterization of Semiconductor Materials, MEMS Optical Systems, Nanophotonics, Photon Trapping with 1D Structures, Advanced Nanomaterials, Nanolithography and Nanomanufacturing, Micro Autonomous Systems: Navigation and Communication, Quality Factors for Nano/Micromechanical Resonators, MEMS Performance Challenges, Nanotechnologies for Energy Generation and Storage, Micro- and Nanotechnology for Health Care Applications, Micro and Nanotechnology for Future Harsh Environment Applications, Miniaturized Sensors and Systems and Micro-Nanotechnologies for Standoff Detection and Counter-Insurgency.

The sheer breadth of the topics showcased at the conference is indicative of the limitless applications of Micro- and Nanotechnologies. The focus of the conference continues to be on the challenges involved in the transition of these exciting, emerging technologies into practical applications in the Defense, Homeland Security, Space, Medical, and Commercial sectors. Each session is uniquely designed to address three “cornerstones” namely, programmatic investments that set the overall context for the cutting-edge research and development being presented, and the challenges involved in transitioning these exciting concepts to practical, system-level applications. We were, once again, fortunate to showcase advanced micro and nanoscale research being conducted by the Air Force Office of Scientific Research, National Institutes of Health, Department of Energy, Office of Naval Research and the Naval Research Laboratory, Army Research Office and the Army Research Laboratory, NASA, and the Defense Advanced Research Projects Agency.

Thanks to our distinguished contributors, in this proceedings volume you will find papers covering the latest developments in the breathtaking range of topics listed above. We hope you enjoy reading the papers and welcome any suggestions that you may have for future topics of interest to the community.

**Thomas George  
M. Saif Islam  
Achyut K. Dutta**

