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***Instrumentation, Metrology, and
Standards for Nanomanufacturing,
Optics, and Semiconductors VII***

**Michael T. Postek
Ndubuisi George Orji**
Editors

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Introduction

The 2013 SPIE Conference 8819, *Instrumentation, Metrology, and Standards for Nanomanufacturing, Optics, and Semiconductors VII*, was designed to help meet the challenges arising from the tremendous developments in the rapidly increasing field of nanotechnology. Nanomanufacturing is the essential bridge from concept to real world products. Issues posed by nanomanufacturing, advanced instrumentation metrology and standards have become extremely important to overcome to ensure success. Novel achievements in optics, semiconductors, and nanotechnologies altogether significantly enhance the demands for highly sensitive and efficient metrology tools. The requirements have also increased for rapid and thorough coverage of large functional areas. This includes the fast and area-covering measurement of properties such as nanoroughness, flatness and figure, thin film structure, and nano-particle contamination. Furthermore, for the development of nanostructured surfaces with specific functionalities (e.g. self-cleaning, tribological effects), a tight link between measurement and modeling tool becomes essential. This conference attempts to provide a forum for those who are interested in nanomanufacturing to present their research and to discuss the challenges they have found and have overcome.

**Michael T. Postek
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