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Introduction

This proceedings volume features accepted papers from the SPIE Conference on Advanced Etch Technology for Nanopatterning IV (The SPIE Etch Conference) held as part of the International Symposium on Advanced Lithography, 22–26 February 2015 in San Jose, California. These proceedings papers cover the latest advances in the wide field of etch and nanopatterning technology and offer a glimpse of the state of the art of this important field of semiconductor technology.

This year's conference continued the fine tradition of wide international representation and attracted many researcher from related fields. For the first time, our conference lasted two full days and was divided into eight sessions, all of which continued to garner tremendous interest among conference attendees.

- Overview of Nanopatterning Challenges
- Nanopatterning for Advanced Logic and Memory Technology Nodes
- Plasma and Resist Interactions, including Patterning Quality Control for LER, CD Uniformity, etc.
- Paterning Integration Schemes: Multilayer Patterning, Self-Aligned Patterning, etc.
- Patterning Materials and Etch: Joint Session with Conference 9425
- Materials and Etch in Emerging Technologies: Joint Session with Conference 9425
- New Plasma Sources and New Etching Technologies
- Emerging Patterning Technologies in DSA and Others

This year, the conference hosted two well-attended joint sessions on Patterning Materials and Etch as well as Materials and Etch in Emerging Technologies with the Advances in Patterning Materials and Processes Conference. The Overview Session, where some of the most important fundamental issues being faced in the world of nanopatterning and etch were discussed, drew very big crowds.

We hope that this proceedings volume will prove valuable to the many patterning scientists and engineers working in the fast-moving semiconductor industry. We also hope that it will serve as a useful reference for those who are interested in nanofabrication, micro- and nano-fluidics, micro- and nano-photonics, Micro-Electro-Mechanical Systems (MEMS), BioMEMS, organic electronics, advanced packaging, as well as bio-chips.

We thank the authors, particularly the invited speakers, for their valuable contributions to this conference and this proceedings volume. The SPIE Etch Conference is highly regarded among the worldwide patterning community due to the high quality of presentations and proceedings papers.

We also thank members of the organizing committee for their dedication and hard work to ensure the high quality of this conference. We are also grateful to LAM Research Corporation for their generous financial support. Finally, we extend our sincere thanks to the SPIE staff for their tireless efforts and their meticulous organizational skills in assembling and publishing this proceedings volume and helping make this year's SPIE Etch Conference a success.

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Sebastian U. Engelmann