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33rd European Mask and Lithography Conference

**Uwe F.W. Behringer
Jo Finders**
Editors

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Foreword

On behalf of VDE/VDI-GMM, the EMLC2017 sponsors, and the EMLC2017 organizing and international program committees, we welcome you to the proceedings from the 33rd European Mask and Lithography Conference, EMLC2017, at the Hilton Hotel in Dresden, Germany.

The conference has annually brought together scientists, researchers, engineers, and technologists from research institutes and companies from around the world to present innovations at the forefront of mask lithography and mask technology. The two and a half day conference is dedicated to the science, technology, engineering, and application of mask and lithography technologies and associated processes, giving an overview of the present status in mask and lithography technologies and the future strategy where mask producers and users have the opportunity of becoming acquainted with new developments and results. This year's sessions included: Wafer Lithography (193i and EUV), Mask Patterning, Metrology, and Process, Non-IC Applications, Nano-Imprint Lithography, Mask2Wafer Metrology, and Using the Data / Big Data.

Mathias Kamolz from Infineon Technologies (Germany) was the welcome speaker. He presented, "The Power of Power-Semiconductors."

Jim Wiley from ASML US, Inc. (United States) was the first keynote speaker. His talk was titled "The Status and Challenges of the EUV photomask ecosystem."

The second keynote speaker was Bryan Rice from Globalfoundries Dresden (Germany) who presented "Breaking the Paradigm: FDX Technology at Globalfoundries."

The third keynote speaker was Paul Ackmann from Globalfoundries Inc. (United States). The title of his presentation was "Integral Nature of Masks through five Decades."

We invited Kurt Ronse from IMEC (Belgium) who presented a talk titled "Recent EUV developments at IMEC."

As every year, the Best Paper and Best Poster from BACUS 2016 were presented, followed by the Best Paper from PMJ 2017. A total of 47 papers—3 keynotes, 9 invited, 20 orals and 15 posters—were presented.

Tutorials

For the first time, the conference included two tutorials. Andreas Erdmann from Fraunhofer IISB (Germany) gave the first tutorial on "General introduction into lithographic imaging by projection optics." The second tutorial, "Interaction of

mask and scanner in EUV projection optics," was presented by Jo Finders from ASML Netherlands B.V.

Technical Exhibition

Parallel to the conference presentations, a technical exhibition took place on Tuesday and Wednesday where companies (mask suppliers, material suppliers, and equipment suppliers) exhibited their companies and products. To foster the exchange between the conference attendees and the exhibitors, the exhibition area was also the place for all coffee and lunch breaks.

We hope that you enjoyed the technical sessions of the EMLC2017 as well as the technical exhibition, but also allowed yourself to visit the beautiful city of Dresden.

Uwe F.W. Behringer
EMLC2017 Conference Chair

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The 33rd European Mask and Lithography Conference, EMLC 2017, would like to express its sincere appreciation to all the sponsors and cooperating partners mentioned below for their support