

Solutions for EUV Mask Making

Thomas Scherübl

ZEISS SMS

www.zeiss.com/mask-solutions

EUV lithography is currently on its way to production. As in optical lithography the photomask is a key element in achieving best chip performance and yield. ZEISS Semiconductor Mask Solutions (SMS) provides solutions for mask manufacturing already for more than a decade. Compared to optical masks, EUV mask making has specific challenges for the mask maker. Most important is to deliver a defect free mask. This requires adequate repair processes to in place. The repair success must be verified by using Aerial Imaging Technology where the mask is analyzed under scanner conditions. Another challenge arises from mix and match of EUV and DUV. As EUV and DUV scanner have completely different set-up, the correction of overlay errors is limited. In this presentation an overview about mask EUV challenges and solutions as well as related technologies offered by ZEISS Semiconductor Mask Solutions (SMS) will be given. Focus will be repair solutions using e-beam based mask repair in combination with a EUV Aerial Imaging Measurement System (AIMS™ EUV). Finally, mask registration metrology and technologies to correct scanner intrafield overlay contributions in the case of DUV EUV mix and match will be discussed and presented.

Presenting Author

Thomas has more than 20 years' experience in the semiconductor industry. After joining ZEISS in 1996 as a scientist, his first position related to photomasks was the lead of system engineering and development of AIMS® systems (at this time for DUV). Since then Thomas held various management positions at ZEISS in R&D and engineering as well as in product and product line management for photomask products. Currently, Thomas is Head of Field of Business Mask Tuning and Head of Product Strategy and Strategic Business Development at ZEISS Semiconductor Mask Solutions (ZEISS SMS).

