

2009 International Workshop on EUV Lithography

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Wavelength-Specific Reflections: A Decade of EUV Mask Inspection Research

ABSTRACT:

Mask inspection is essential for the success of any pattern-transfer lithography technology. Yet EUV Lithography faces such unique challenges that numerous ideas and solutions have emerged. Resonant-reflective multilayer coatings have a wavelength-specific response that dramatically affects the way that defects appear--or disappear--at various illuminating wavelengths.

Ranging from basic research and demonstration experiments to commercial inspection tool prototypes, this presentation will survey the recent history of work in this area. During the past decade, many groups have dedicated their research efforts toward the inspection of EUV masks, trying different configurations and geometries, but all with similar goals. Compounding the challenges, the differences between blank and patterned mask inspection are significant enough to warrant separate approaches. From scanning beams to microscopy, dark field imaging to confocal microscopy, many techniques have been put into practice. I will review the challenges, many of the methods, and their best results.

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