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Author
Trefonas, Peter

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Performance of EUV photoresists on the ALS micro exposure tool

Thomas Koehler and Robert L. Brainard
Rohm and Haas Electronic Materials (USA)
Patrick P. Naulleau
Lawrence Berkeley National Lab. (USA)
David Van Steenwinckel and Jeroen H. Lammers
Philips Research Leuven (Belgium)
Kenneth A. Goldberg
Lawrence Berkeley National Lab. (USA)
Joseph F. Mackevich and Peter Trefonas
Rohm and Haas Electronic Materials (USA)

The new high NA (0.3) Micro Exposure Tool at the Advanced Light Source (MET@ALS) at Lawrence Berkeley National Laboratories provides the first opportunity to evaluate the ultimate resolution capabilities of chemically amplified resists using EUV lithography. We characterized the imaging capabilities of a well-known tool-test resist (EUV-2D, XP98248B) and a new high resolution resist (MET-1K, XP3454C). Emphasis was placed on evaluating resists for focus and exposure latitude at 50 nm dense and isolated lines. MET-1K is capable of resolving 30 nm lines and shows modulation in 25 nm dense lines. We describe some early process optimization experiments using MET-1K that show further advances in lithographic capability. Another new series of resists (MET-2A, 2B, 2C, 2D) also show great promise for good resolution, LER and sensitivity.

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