# Latest results from the SEMATECH Berkeley extreme ultraviolet microfield exposure tool

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Microfield exposure tools (METs) continue to play a dominant role in the development of extreme ultraviolet (EUV) resists. One of these tools is the SEMATECH Berkeley 0.3-NA MET operating as a SEMATECH resist and mask test center. Here we present an update on the tool summarizing some of the latest test and characterization results. We provide an update on the long-term aberration stability of the tool, present line-space imaging in chemically amplified photoresist down to the 20-nm half pitch level as well as contact hole printing results with resolution down to 30 nm. Although resist development has progressed relatively well in the area of resolution, line-edge-roughness (LER) remains a significant concern. Here we present a summary of recent LER performance results and consider the effect of system-level contributors to the LER observed from the SEMATECH Berkeley microfield tool. In particular, we discuss the contribution from both mask roughness and projection optics flare. The role illumination coherence (pupil fill) plays in these effects is also discussed.

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