

EBL2, a flexible and controlled EUV exposure and surface analysis system

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The trend to ever increasing power in EUV systems causes increased risks to optics, reticles, pellicles, and sensors. To address these risks, we are developing EBL2: a laboratory EUV exposure system capable of operating at high broad band EUV powers and intensities. The system architecture is similar to the EUV Beam Line which has been operated jointly by TNO and Carl Zeiss SMT since 2005. EBL2 contains a Beam Line, in which samples can be exposed to EUV radiation in a controlled environment. XPS analysis of exposed samples is possible without breaking vacuum.

The system can accept a range of sample sizes, including standard EUV reticles with or without pellicles. Compared to the existing system, large improvements in EUV power, intensity, metrology, reliability, and flexibility are achieved. In-situ measurements by ellipsometry will enable real time monitoring of the sample condition. The system is presented in general, and particular attention is given to its metrology features.

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