



1. Title:	High power EUV source development for beta-level and high volume manufacturing lithography
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7. Abstract body:

Xenon-fueled gas discharge produced plasma sources with integrated source collector optics are currently under development to achieve ≥ 10 W intermediate focus power for the usage in beta-tools. Reasonable cost-of-ownership values will be achieved by long lifetimes of the main consumables like electrode system and collector optics. For example, efficient debris mitigation schemes for the collector mirror have been developed to achieve collector lifetimes between 5 and 10 billion pulses. Lifetime and performance data will be discussed in detail.

For the high volume manufacturing power level, tin-fueled discharge sources with rotating electrodes and a highly efficient excitation system are under development. EUV average power of 220 W in 2π sr has been achieved. Single pulse energies and source sizes were demonstrated, which support an intermediate focus power far above 100 W with reasonable repetition rates of approx. 10 kHz. Source characteristics and data about tin debris mitigation and optics cleaning will be presented. Power scaling capabilities of the approach will be discussed.