1. Title:	Microdsicharge Array For Advanced EUVL Illumination
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3. Abstract body:

The 2006 joint specification projected in-band EUV power requirements at the intermediate focus will rise beyond 185W 2%-bw to maintain the necessary 80-100WPH throughput for economic viability. New improvements in photon efficiency and mask illumination are needed to reduce reflections and power demand, as well as improving source spatial uniformity for shot noise reduction. In this paper, we will present a novel approach to the EUV source-optic architecture using a high-brightness light source array for direct integration within the illumination optical system. Spatial uniformity and Kohler illumination across the entrance pupil is achieved by dividing the incident light into discrete bundles on a fly's eye mirror. These light bundles form a secondary source image plane that is projected onto the pupil of the projection optics. In this paper we will show that a light source array can be positioned at this image plane, eliminating the need for 4 upstream optical elements and reducing reflections and in-band EUV power requirements by 75%. This configuration allows electronic adjustment of partial coherence and depth of focus for improved lithographic contrast and resolving capability. By distributing total EUV power across discrete units, thermal and particle loadings become manageable without the need for exotic materials or cooling schemes, and sources of contaminating debris are reduced. We will show the latest results from our high-brightness xenon microdischarge source testing and simulation. Projections for scaling to HVM conditions will also be presented.