

Study of plasma dynamics and spectral tunability in hollow cathode triggered gas-discharge sources

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Gas discharge EUV sources are compact and versatile sources of short wavelength radiation for small-scale applications. By employing different gases as well as gas-mixtures, the emission properties can be tailored according to the application requirements. Spectral analysis for a variety of settings and fuels is performed to explore the parameter range for future experiments. Inherent to gas-puff z-pinches, not only spectra but also the plasma dynamics change with gas type and pressure. Time resolved plasma images have been recorded with use of a CsI-coated microchannel plate (5-30 nm spectral range) at 2 ns exposure time and in 5 ns time steps under different observation angles. This technique is used to create “slow motion” representations of discharges in different gases and gas mixtures.