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| 1. Title: | Toward HVM conditions with the Tin-doped droplet laser plasma source |
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3. Abstract body:

Progressive development of the tin-doped droplet laser-plasma EUVL source at UCF has brought its development close to that required for HVM operation. This stable, room-temperature, mass-limited tin-doped liquid source operates continuously at 30 kHz frequencies with 24/7 operation and 3 um long-term spatial stability. The measured in-band conversion efficiency is currently 2.3%. With only 1% tin atom constituency and < 30 um diameter, its overall tin inventory is > 1000 times less than other tin droplet LPP EUV sources and the consumption of tin in DPP sources. This small inventory at room temperature mitigates collector mirror damage. Callibrated ion energy spectrometry of the individual ion species present at mirror-equivalent distances indicate mirror lifetimes of ~ 60 hrs without any mitigation for HVM conditions. We have also developed two compatible mitigation schemes currently offering over 1000-times inhibition, with low transmission losses and large (> 2pi) solid angle collection. Measurements of out-of-band emission in the > 400 nm range show levels below requirements, including scattered 1um laser light, and we will present new data of XUV and UV emission. Progress towards incorporating this source with cost-effective, high power solid-state lasers to provide significant power at IF will be described.