

Abstract Submitted  
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**Generation of Phase-Coherent Soft X-Ray Laser Beams by Seeding Plasma Amplifiers** DAVID ALESSI, MARK BERRILL, YONG WANG, SCOTT DOMINGUE, DALE MARTZ, DAVID KEMP, BRAD LUTHER, JORGE ROCCA, Colorado State University, NSF ERC FOR EXTREME ULTRAVIOLET SCIENCE AND TECHNOLOGY TEAM — Injection seeding of soft x-ray plasma amplifiers with high harmonic pulses offers important advances for applications including full spatial and temporal coherence, reduced divergence, shorter pulsewidth, and increased brightness. We report detailed measurements and simulations of the near-field and far-field beam patterns from a 13.9 nm Ni-like Ag seeded soft x-ray laser. A comparison of the ASE and seeded soft x-ray lasers beam characteristics gives insight into the underlying physics of the plasma amplifier, including the extent and duration of the gain. Model results are compared to 2D model simulations. Work supported by the NSF EUV ERC Award #EEC-0310717. M.B. was supported by DOE CSGF Grant #DE-FG02-97ER25308 References Y. Wang et al., Nature Photonics 2, 94-98 (2008) Y. Wang et al., Physical Review A, 79, 023810 (2009)

David Alessi  
Colorado State University

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