

Abstract Submitted
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Demonstration of a high average power table-top soft x-ray laser at 13.9 nm¹ DALE MARTZ, DAVID ALESSI, YONG WANG, BRAD LUTHER, MARK BERRILL, SCOTT DOMINGUE, DAVID KEMP, JORGE ROCCA, Colorado State University, NSF CENTER FOR EXTREME ULTRAVIOLET SCIENCE AND TECHNOLOGY, COLORADO STATE UNIVERSITY TEAM — We have demonstrated a significant increase in the average power of table-top soft x-ray lasers at a wavelength of 13.9 nm. We present results of a Ni-like Ag amplifier operating at 2.5 Hz with a peak energy of ~ 10 uJ per pulse. The results were obtained in a plasma generated by rapidly heating a solid target with 3-5J picosecond laser pulses from a titanium sapphire laser system. To obtain the increased average power of 20 uW, we upgraded our Ti:sapphire laser system with a high-energy Nd:Glass slab pump laser that can operate at a 2.5 Hz repetition rate. High repetition rate EUV lasers enable new applications in science and the development of unique metrology and processing tools for industry. The increase in the average power allows new applications of intense coherent soft x-ray light on a table-top.

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