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Modeling of a Seeded Table-Top Soft X-Ray Laser Amplifier MARK BERRILL, DAVID ALESSI, JORGE J. ROCCA, Colorado State University, NSF ERC FOR EXTREME ULTRAVIOLET SCIENCE AND TECHNOLOGY TEAM — Key to the development of compact soft x-ray lasers for applications is the understanding of the plasma physics and amplification behavior. For this purpose we have developed a two temperature 1.5D hydrodynamic code with complete atomic model and radiation transport. The propagation of the amplified light is simulated with a 3D ray tracing post processor code. The code was used to model the amplification of high harmonic seed pulses in a dense transient collisional soft x-ray laser plasma amplifier created by heating a solid titanium target. The results of seeded amplification in the 32.6 nm line of Ne-like Ti are compared to experimental results which demonstrated the generation of a very high brightness soft x-ray laser beam with nearly full spatial coherence. Work supported by the NSF ERC for Extreme Ultraviolet Science and Technology under NSF Award EEC-0310717.

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