

Abstract Submitted
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Development of a thermal X-radiation source using short pulse lasers¹ KELLY CONE, LLNL & UC Davis, HECTOR BALDIS, UC Davis, LEE ELBERSON, U. of Maryland & LLNL, HUI CHEN, MARK MAY, MARILYN SCHNEIDER, RONNIE SHEPHERD, LLNL — We report on experiments designed to use short pulse lasers to generate a thermal x-radiation source. The ideal source has a blackbody-like spectra with the radiation density inside the source equal to the blackbody radiation density. The source we are developing is a thin foil irradiated by a short pulse laser. We report on the initial experiments which vary laser energy, pulse length, and target thickness to maximize the conversion of laser energy into soft x-rays. Later experiments will characterize the heating mechanisms by measuring the temporal evolution of soft x-ray emission as well as the energy distribution of hot electrons leaving the target. Understanding the heating mechanisms is crucial to the development of an x-radiation source and contributes to the field of basic plasma physics under extreme conditions.

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