

Abstract Submitted
for the DPP08 Meeting of
The American Physical Society

Spectroscopic diagnosis of OMEGA direct-drive low-adiabat implosions¹ RICARDO FLORIDO, Universidad de Las Palmas de Gran Canaria, Las Palmas de Gran Canaria, Spain, T. NAGAYAMA, R.C. MANCINI, Physics Department, University of Nevada, Reno, R. TOMMASINI, Lawrence Livermore National Laboratory, Livermore, CA, J. DELETTREZ, S.P. REGAN, V. SMALYUK, Laboratory for Laser Energetics, University of Rochester, NY — We discuss the observation and data analysis of K-shell line spectra from argon-doped deuterium-filled OMEGA direct-drive low-adiabat implosions based on data recorded with streaked crystal spectrometers. The argon line spectrum is primarily emitted at the collapse of the implosion thus providing a spectroscopic diagnostic of core implosion conditions. The observed spectra includes resonance and satellite transitions in H-, He- and Li-like Ar ions thus covering a broad photon energy range from 3200 eV to 4200 eV with a spectral resolution power of approximately 500. Both optically thick and thin lines are simultaneously modeled, including line overlapping and Stark-broadening effects. The spectroscopic analysis yields the details of temperature and density time-histories in the compressed core.

¹Work supported by DOE/NLUF Grant DE-FG52-07NA28062, LLNL, and ULPGC Grant 07-010.

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Date submitted: 22 Jul 2008

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