

Abstract Submitted
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K-shell radiation from Krypton Doped Symmetric Capsule Implosion Experiments on NIF NICHOLAS OUART, ARATI DASGUPTA, United States Naval Research Laboratory, MARILYN SCHNEIDER, HOWARD SCOTT, ROBERT KAUFFMAN, DANIEL THORN, ANDREW MACPHEE, Lawrence Livermore National Laboratory, LAN GAO, KENNETH HILL, BRIAN KRAUS, MANFRED BITTER, PHILIP EFTHIMION, Princeton Plasma Physics Laboratory — X-ray spectroscopy is used to diagnose plasma conditions of a symmetric capsule (symcap) target in ICF experiments on NIF. Small traces of krypton were added as a dopant to the deuterium gas inside the symcap target. The high areal density shell of the symcap target has minimal attenuation of the krypton K-shell emission. The fraction of krypton dopant was selected to minimally perturb the implosion, but large enough to be measured[1,2]. The krypton He-alpha and He-beta line emission was measured using the absolutely calibrated dHIRES built by PPPL[3]. Synthetic spectra generated from the NRL DRACHMA II code will be used to model the radiation to infer the plasma conditions. Drachma is a 1-D multi-zone non-LTE kinetics model with radiation transport. [1] T. Ma *et al.*, RSI 87, 11E327 (2016) [2] H. Chen, T. Ma, R. Nora, et al, Phys Plasmas 24. 072715 (2017) [3] L. Gao *et al.*, RSI **89**, 10F125 (2018) *Work supported by DOE/NNSA at NRL and U.S. DOE by LLNL under Contract No. DE-AC52-07NA27344. DISTRIBUTION A. Approved for public release: distribution unlimited.

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