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Spectroscopic Diagnostics of 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, JOHN GIULIANI, United States Naval Research Laboratory — X-ray spectroscopy is used to diagnose plasma conditions of a symmetric capsule (symcap) target in ICF experiments on NIF. The DD gas inside the symcap target was doped with small traces of krypton. 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 high enough to provide enough photons. The krypton He-alpha and He-beta line emission was measured using the absolutely calibrated dHIRES built by PPPL. 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. *Work supported by DOE/NNSA at NRL and U.S. DOE by LLNL under Contract No. DE-AC52-07NA27344.

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