

Abstract Submitted
for the DPP10 Meeting of
The American Physical Society

Multi-keV X-ray Yields from High-Z Targets Fielded at the OMEGA Laser and the National Ignition Facility¹ JAVE KANE, KEVIN FOURNIER, MARK MAY, JEFFREY COLVIN, CLIFF THOMAS, ROSCOE MARRS, STEVEN COMPTON, JOHN MOODY, ESSEX BOND, Lawrence Livermore National Laboratory, JOHN DAVIS, Alme & Associates — We report on measurements and modeling of fluxes from X-ray source targets recently shot at the National Ignition Facility (NIF) and at the Omega laser. The targets were thin-walled pipes filled with mixtures of Xe and Ar gas at pressures of 1 to 1.5 atmospheres. The targets were irradiated with 3ω laser light, 20 kJ in 1 ns at Omega and 350 kJ in 5 ns at NIF. The emitted X-ray flux was monitored with multiple channels of X-ray-diode based DANTE instruments, and imaged with gated X-ray detectors. We compare predicted X-ray yields to measure yields. The current modeling appears to under-predict the yield of gas mixtures containing Ar. We also report on design and modeling of Fe foam-filled and stainless steel-lined targets.

¹This work performed under the auspices of the U.S. Department of Energy by Lawrence Livermore National Laboratory under Contract DE-AC52-07NA27344.

Jave Kane
Lawrence Livermore National Laboratory

Date submitted: 16 Jul 2010

Electronic form version 1.4