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Multi-Kev X-Ray Emission from High-Z Gas Targets Fielded at Omega and NIF MARK MAY, KEVIN FOURNIER, JEFF COLVIN, JAVE KANE, LLNL — We report on the measured X-ray flux from gas-filled targets shot at both the OMEGA and NIF laser facilities. The OMEGA targets were 1.8 mm long, 1.95 mm in diameter Be cans filled with either a 50:50 Ar:Xe mixture, pure Ar, pure Kr or pure Xe at ~ 1 atm. The OMEGA experiments heated the gas with 20 kJ of 3ω (~ 350 nm) laser energy delivered in a 1 ns square pulse. The NIF targets were thin walled ($25 \mu\text{m}$), 4 mm long, 4 mm inner-diameter epoxy pipes filled with 1.2 atm of a 65:35 Ar:Xe mixture. The NIF experiments heated these targets with 350 kJ of 3ω (~ 350 nm) laser energy delivered in a 5 ns square pulse at up to 75 TW of laser power. The emitted X-ray flux was monitored with the X-ray diode based DANTE instruments in the sub-keV range. Two-dimensional X-ray images (for energies 3-5 keV) of the targets were recorded with gated X-ray detectors. The X-ray spectra were recorded with the HENWAY crystal spectrometer at OMEGA. The results from both experiments will be compared. This work performed under the auspices of the U. S. Department of Energy by Lawrence Livermore National Laboratory under Contract DE-AC52-07NA27344.

Mark May
LLNL

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