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Framed X-Ray Imaging of Cryogenic Target Implosion Cores on Omega F.J. MARSHALL, V.N. GONCHAROV, V.YU. GLEBOV, S.P. REGAN, T.C. SANGSTER, C. STOECKL, Laboratory for Laser Energetics, U. of Rochester — Cryogenic DT target implosions being performed on the OMEGA Laser System are now being diagnosed by two high-speed x-ray framing cameras ($\sim$ 30-ps frame times) able to time- and space-resolve the evolving high-pressure stagnating plasma core. One high-speed framing camera is coupled to a pinhole array and is able to image the core emission every 15 ps with $\sim$ 16-μm spatial resolution. It can accurately measure the time of x-ray emission peak and duration. The other framing camera is coupled to a novel 16-image Kirkpatrick–Baez (KB)-type x-ray optic[1] providing $\sim$ 7-μm spatial resolution and can also sample the emission with images spaced in time by as little as $\sim$ 15 ps. The core emission size determined from the framed KB images at the peak of stagnation allows for inferences of core pressure when combined with measurements of the ion temperature, burnwidth, and neutron yield. This material is based upon work supported by the Department of Energy National Nuclear Security Administration under Award Number DE-NA0001944.

[1]F. J. Marshall, Rev. Sci. Instrum. **83**, 10E518 (2012).

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