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Multi-view areal-density maps of compressed shells in OMEGA direct-drive implosions extracted from MMI data[1] HEATHER JOHNS, TIRTHA JOSHI, DANIEL MAYES, TUNAY DURMAZ, ROBERTO MANCINI, University of Nevada, Reno Physics Department, RICCARDO TOMMASINI, Lawrence Livermore National Laboratory, JACQUES DELETTREZ, SEAN REGAN, Laboratory for Laser Energetics, University of Rochester, TAISUKE NAGAYAMA, Sandia National Laboratories — In a series of implosion experiments performed at the OMEGA laser facility, spherical plastic shells doped with an embedded titanium tracer-layer and filled with deuterium gas were driven with high- and low-adiabat laser pulse shapes. The titanium emergent intensity distribution was recorded with a streaked spectrometer and three identical gated, multi-monochromatic x-ray imaging instruments (MMI) that observed the implosion along three quasi-orthogonal lines-of-sight. The data shows spectral signatures due to absorption K-shell line transitions in titanium L-shell ions that are backlit by the continuum radiation from the hot core. To interpret these observations, the MMI spectrally-resolved image data were processed to obtain narrow-band images and spatially-resolved spectra based on the titanium spectral features.[2] Areal-density maps were extracted using two independent methods based on narrow-band images and spatially-resolved spectra. The areal-density maps reveal the 3D structure and state of the compressed shell through the collapse of the implosion and the performance differences between high- and low-adiabat implosions.

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[2]T. Nagayama, R.C. Mancini, R. Florido, *et al*, J. App. Phys. **109**, 093303 (2011)

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