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Investigation of hydrodynamic stability of OMEGA low-adiabat implosions using x-ray spectrally-resolved images recorded with MMI¹ R. MANCINI, T. NAGAYAMA, T. JOSHI, H. JOHNS, T. DURMAZ, University of Nevada, Reno, R. TOMMASINI, Lawrence Livermore National Laboratory, J. DELETTREZ, S. REGAN, W. THEOBALD, Laboratory for Laser Energetics, University of Rochester — Spherical plastic shells doped with a titanium tracer-layer on the inner surface and filled with deuterium gas were driven at OMEGA with low-adiabat shaped laser pulses. The titanium x-ray emission is primarily emitted at the collapse of the implosion and recorded with the gated, multi-monochromatic x-ray imager (MMI) instrument. The spectrally-resolved image data were processed to obtain narrow-band images and spatially-resolved spectra based on the x-ray line emission of titanium.² The narrow-band images reveal the spatial distribution of titanium in the implosion core and thus provide an indication of the hydrodynamic stability of the implosion. The spatially-resolved titanium line spectra can be analyzed to extract the spatial distribution of electron temperature and density, and mixing in the implosion core.

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