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Core spatial structure and areal-density modulation in OMEGA direct-drive implosions cores[1] T. NAGAYAMA, H.M. JOHNS, R. MANCINI, R. FLORIDO, University of Nevada, Reno, Physics Department, Reno, NV 89557, USA, R. TOMMASINI, J. KOCH, Lawrence Livermore National Laboratory, Livermore, CA 94550, USA, J. DELETTREZ, S. REGAN, V. SMALYUK, Laboratory for Laser Energetics, University of Rochester, NY 14623, USA — We discuss the observation of spectrally resolved image data from argon-doped, deuterium-filled OMEGA direct-drive implosions. A titanium-doped tracer layer is also embedded in the plastic shell. The image data were recorded simultaneously along three quasi-orthogonal lines of sight (LOS) using three identical, gated Direct-Drive Multi-Monochromatic x-ray Imagers (DDMMI). For each LOS, a set of space-resolved argon emission and titanium absorption line spectra can be extracted from the spectrally resolved core image data recorded with the DDMMI instruments. The argon x-ray emission emitted at the collapse of the implosion provides a spectroscopic signature for the spatial structure of the imploded core, while the titanium line absorption of continuum radiation has information about the areal-density modulations in the compressed shell. We discuss the connection between the areal-density modulations observed along the three LOS and the spatial-structure of the core.

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