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X-ray spectroscopy of polar-drive implosions at OMEGA¹ ROBERTO MANCINI, H. JOHNS, T. JOSHI, D. MAYES, S. NASEWICZ, University of Nevada, Reno, S. HSU, J. COBBLE, P. HAKEL, I. TREGILLIS, J. BAUM-GAERTEL, N. KRASHENINNIKOVA, P. BRADLEY, M. SCHMITT, Los Alamos National Laboratory — In a series of polar-drive implosions performed at OMEGA several x-ray spectrometers were fielded to record the signal from Ar and Ti tracers added to the core and shell, respectively. The instruments included time-integrated (XRS) and streaked (SSCA) spectrometers as well as gated monochromatic imagers (MMI). Analysis of the Ar streaked data produced the time-history of density and temperature in the core. The gated images provided information about symmetry along both the polar axis and the equatorial plane lines-of-sight. In addition, a generalized Abel inversion of narrow-band images and detailed analysis of spatially resolved spectra extracted from spectrally resolved images recorded with MMI produced spatial distinutions of plasma conditions and mix (T. Nagayama et al, Phys. Plasmas 19, 082705 (2012)). Comparisons were made with results from postprocessed 3D simulations to provide further insight into the interpretation of the experimental results and to constrain the simulation physics model.

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