Abstract Submitted
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Temperature in subsonic and supersonic radiation fronts measured at OMEGA HEATHER JOHNS, JOHN KLINE, NICK LANIER, TED PERRY, CHRIS FONTES, CHRIS FRYER, Los Alamos Natl Lab, COLIN BROWN, JOHN MORTON, AWE, UK — Propagation of heat fronts relevant to astrophysical plasmas is challenging in the supersonic regime. Plasma T_e changes affect opacity and equation of state without hydrodynamic change. In the subsonic phase density perturbations form at material interfaces as the plasma responds to radiation pressure of the front. Recent experiments at OMEGA studied this transition in aerogel foams driven by a hohlraum. In COAX, two orthogonal backlighters drive x-ray radiography and K-shell absorption spectroscopy to diagnose the subsonic shape of the front and supersonic T_e profiles. Past experiments used absorption spectroscopy in chlorinated foams to measure the heat front[1]; however, Cl dopant is not suitable for higher material temperatures at NIF. COAX has developed use of Sc and Ti dopants to diagnose T_e between 60-100eV and 100-180eV. Analysis with PrismSPECT using OPLIB[3] tabular opacity data[4] will evaluate the platform's ability to advance radiation transport in this regime. 1. D. Hoarty *et al* PRL **82**, 3070, 1999 2. J. Hager, *et al*, submitted to RSI 3. J. Colgan, *et al*, Astrophys. J. **817**, 116, (2016) 4. H. Johns, *et al*, RSI **87** 11E337 (2016)

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