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Observation of subsonic and supersonic radiation fronts on OMEGA utilizing radiation transport through Sc-doped aerogels[1] H. M. JOHNS, J KLINE, N LANIER, T PERRY, C FONTES, C FRYER, Los Alamos National Laboratory, C BROWN, J MORTON, AWE, UK, J HAGER, Lockheed Martin, USA — The propagation of a heat front in an astrophysical or inertial confinement fusion plasma involves both the equation of state and the opacity of the plasma, and is therefore an important and challenging radiation transport problem. Past experiments have used absorption spectroscopy in chlorinated foams to measure the heat front. (D. Hoarty *et al* PRL **82**, 3070, 1999). Recent development of Ti-doped cylindrical aerogel foam targets (J. Hager et al submitted to RSI) results in a more suitable platform for higher temperatures on NIF than Cl dopant. Ti K-shell absorption spectra can be modeled with PrismSPECT to obtain spatially resolved temperature profiles between 100-180eV. Sc dopant has been selected to characterize the heat front between 60-100eV. Improved understanding of non-planckian x-ray drives generated by hohlraums will advance characterization of the radiation transport. Prior work demonstrates PrismSPECT with OPLIB is more physically complete for Sc (H. Johns et al submitted to RSI). We will present the first application of spectroscopic analysis of the Sc-doped aerogels utilizing this method.

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