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Anisotropic Radiation Transport Experiments on the OMEGA Laser[1] JONATHAN HAGER, NICK LANIER, JOHN KLINE, KIRK FLIPPO, JONATHAN WORKMAN, Los Alamos National Laboratory, H.C. BRUNS, M. SCHNEIDER, M. SACULLA, T. MCCARVILLE, Lawrence Livermore National Laboratory — A new experimental platform is being developed at the OMEGA laser to generate an anisotropic radiation source to provide data that will challenge our implementation of Implicit Monte Carlo (IMC) radiation transport models. A low density silica aerogel foam physics package is mounted to a laser driven half-hohlraum. The x-ray drive from the hohlraum is modified by a filter and aperture to decrease the optical thickness of the foam and increase the source anisotropy, respectively. Point projection backlighting is used to measure the hydrodynamic response to the Marshak wave once it goes subsonic. The temperature of the driven foam can also be inferred using absorption spectroscopy when a titanium dopant is introduced. Experimental results using a Ti doped foam will be presented with analytic calculations and 2-D radiation hydrodynamic simulations demonstrating the impact of the source anisotropy on the measurable parameters in the foam.

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