

Abstract Submitted
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Platform development of x-ray absorption-based temperature measurements above 100-eV on the OMEGA laser¹ JONATHAN WORKMAN, P. KEITER, T. TIERNEY, H. TIERNEY, K. BELLE, G. MAGELSEN, R. PETERSON, C. FRYER, Los Alamos National Laboratory, A. COMLEY, M. TAYLOR, Atomic Weapons Establishment — Experiments were performed on the OMEGA laser system at the University of Rochester to measure radiation temperature in hohlraum-heated foams. Using x-ray absorption spectroscopy in the 3-6-keV x-ray range allows temperature determination in the range of 50-200-eV. Uranium, bismuth and gold M-shell x-ray emission were used as broadband backlighters. Backlighter absorption through heated chlorinated foam and scandium tracers were used to determine temperatures. The development of this technique in the temperature range of 100-200-eV will be used for platform development of future NIF experiments. We will present time-integrated and time-resolved measurements of x-ray emission from the backlighter materials as well as absorption measurements through the heated tracer materials. We will also present future directions in the development of this platform.

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