

Abstract Submitted
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On-axis Hohlraum Radiography associated with N-Waves in Stellar Atmospheres. A.S. MOORE, J. FOSTER, P. GRAHAM, M. TAYLOR, AWE Aldermaston, UK, S. MACLAREN, P. YOUNG, G. GLENDINNING, A. REIGHARD, C. SORCE, LLNL Livermore, USA, C. BACK, J. HUND, B. BLUE, GA, San Diego, USA — The propagation of weak shocks in a stellar atmosphere, in conjunction with the high x-ray flux cannot be well-described using weak-shock theory. Experiments performed at the LLE OMEGA laser attempt to study shock dynamics similar radiation conditions. Point-projection radiography was performed along the axis of a 160eV hohlraum, illuminating the structures formed by the ablation of a 0.2mm annular slot in a solid Ta disc. Diagnosed whilst laser-driven, the platform also enables quantitative measurements of x-ray flow through high-Z foam slot. Backlit images of the radiatively-driven slot show complex ‘bubble-like’ features at the intersection of ablation fronts. Despite the 3D aspects of the experiment, 2D simulations, using the radiation-hydrodynamics code are an excellent qualitative match to the data, demonstrating that structures result from a high pressure spike that forms from the colliding ablation fronts driving a blast wave-like expansion into the dense stagnation region.

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