Abstract Submitted
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A diffusive radiation hydrodynamics code, xRage, is implemented to compare radiation flow with experimental data from the Omega laser facility ROBERT VANDERVORT, LAURA ELGIN, University of Michigan, Los Alamos National Laboratory, EBRAHEEM FARAG, The Ohio State University, Los Alamos National Laboratory, KATIE MUSSACK, JESSICA ANN BAUMGAERTEL, Los Alamos National Laboratory, PAUL KEITER, SALLEE KLEIN, University of Michigan, CHRISTOPHER ORBAN, The Ohio State University, R. PAUL DRAKE, University of Michigan — A sound speed discrepancy between solar models and data collected using helioseismology exists. The sound speed discrepancy is the most pronounced at the base of the convective zone (CZ) for otherwise consistent solar models. One potential solution is that the opacity models for important elements such as carbon, nitrogen and oxygen are incomplete. At these high energy-density conditions few relevant opacity measurements exist to compare to the models. Only relatively recently have user facilities been able to reach the temperatures and densities that resemble the convective zone base. It is our long term goal to determine the opacities of carbon, nitrogen and oxygen at the relevant conditions. Preliminary testing has occurred at the Omega Laser Facility in Rochester, New York. Presented are the results of the shots taken on April 22, 2015. A half hohlraum was used to drive a supersonic radiation front through a dominantly carbon, CRF, foam. These results are compared to diffusive xRage simulations. (LA-UR-15-25495)

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