Abstract Submitted
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Laboratory Tests of Stellar Interior Opacity Models[1] J.E. BAILEY, G.A. ROCHAU, S.B. HANSEN, P.W. LAKE, T.J. NASH, D.S. NIELSEN, R.D. THOMAS, Sandia, C.A. IGLESIAS, LLNL, J. ABDALLAH JR., M.E. SHERRILL, LANL, J.J. MACFARLANE, I.E. GOLOVKIN, P. WANG, Prism, R.C. MANCINI, UNR, C. BLANCARD, PH. COSSE, G. FAUSSURIER, F. GILLERON, J.C. PAIN, CEA, A.K. PRADHAN, S.N. NAHAR, M. PINSONNEAULT, OSU — The internal structure of stars depends on the radiative opacity of the stellar matter. However, opacity models have never been experimentally tested at the conditions that exist inside stars. Experiments at the Sandia Z facility are underway to measure the x-ray transmission of iron, an important stellar constituent, at temperature and density high enough to evaluate the physical underpinnings of stellar opacity models. Initial experiments provided information on the charge state distribution and the energy level structure for the iron ions that exist at the solar radiation/convection boundary. Data analysis and new experiments at higher densities and temperatures will be described.

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