

Abstract Submitted
for the DPP07 Meeting of
The American Physical Society

Iron plasma transmission measurements at temperatures above 150 eV J.E. BAILEY, G.A. ROCHAU, P.W. LAKE, Sandia National Laboratories, C.A. IGLESIAS, Lawrence Livermore National Lab, J. ABDALLAH, JR., Los Alamos National Lab, J.J. MACFARLANE, I. GOLOVKIN, P. WANG, Prism Computational Science, R.C. MANCINI, U. of Nevada, Reno, C. BLANCARD, PH. CROSSE, G. FAUSSURIER, F. GILLERON, S. MAZEVET, J.C. PAIN, CEA, Bruyeres-le-Chatel, France, M. BUMP, O. GARCIA, T.C. MOORE, K-Tech — Measurements of iron plasma transmission at 156 ± 6 eV electron temperature and $6.9 \pm 1.7 \times 10^{21}$ cm⁻³ electron density are reported over the 800-1800 eV photon energy range. The temperature is more than twice that in prior experiments, permitting the first direct experimental tests of absorption features critical for understanding solar interior radiation transport. Detailed line-by-line opacity models are in excellent agreement with the data. Applications may require simplified models employing different approximations and the work described here provides a new ability to estimate the accuracy compromises that result. Sandia is a multiprogram laboratory operated by Sandia Corporation, a Lockheed Martin Company, for the U.S. Dept. of Energy under contract No. DE-AC04-94AL85000.

James Bailey
Sandia National Laboratories

Date submitted: 24 Jul 2007

Electronic form version 1.4