

Abstract Submitted
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Study of iron under high pressure conditions using isentropic compression¹ ERIK BRAMBRINK, H.G. WEI, A. BENUZZI, A. DIZIERE, M. KOENIG, LULI, Ecole polytechnique, Palaiseau, France, T. VINCI, G. HUSER, S. MAZEVET, F. OCCELLI, DPTA, CEA/DAM, Bruyères-le-Châtel, France, G. MORARD, F. GUYOT, Laboratoire de Minéralogie (UMR 75-90), IMPMC, Paris, France, K. MYANISHI, R. KODAMA, N. OZAKI, Graduate school of engineering, Osaka university, Suita, Osaka, Japan, T. DE REGISSEUR, Laboratoire de Combustion et de Detonique (UPR 9028), ENSMA, Futuroscope, France — Equation of state (EOS) data of iron and iron alloys is important for a deeper understanding of the dynamic of the earth inner core, which requires off-Hugoniot data (~ 3 Mbar, 5000 K), especially in the range of the high pressure-melting curve. Isentropic compression with high-energy lasers is a promising approach to reach high-pressure off-Hugoniot states. Presently two techniques are used: an indirect approach using the ramp load of a foil exploded by a laser (reservoir technique) [1] and direct ramping of the ablation pressure by shaping the temporal profile of the laser [2]. We are presenting results on isentropic compression experiments of iron using the reservoir technique and direct laser shaping. [1] Smith, Phys. Plasmas 14, 057105 (2007) [2] Swift, PRE 71, 066401 (2005)

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