

Measurements of sound velocity of laser-irradiated iron foils relevant to earth core condition

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We have been developing an experiment on measurements of sound velocity of iron relevant to earth core with intense laser. Intense laser can create ultra-high pressure condition of earth center (~ 350 GPa). The sound velocity was measured with side-on x-ray radiograph technique, which is powerful method to obtain not only sound velocity but also pressure, density, particle velocity, and so on. We irradiated three-layered iron foils by HIPER laser at ILE, Osaka University. We also measured the shocked temperature by a pyrometer. In order to obtain various data as a function of pressure and temperature, we changed the laser intensity and the pulse shape. The experimental data and discussions of the results will be described.