

Abstract Submitted
for the MAR15 Meeting of
The American Physical Society

Transition to Metallic Phase of Fluid Hydrogen at High Pressure and High Temperature¹ MARI EINAGA, SHO KAWAGUCHI, KATSUYA SHIMIZU, KYOKUGEN, Osaka University, KENJI OHTA, Department of Earth and Planetary Sciences, Tokyo Institute of Technology, NAOHISA HIRAO, YASUO OHISHI, Japan Synchrotron Radiation Research Institute — We investigated the phase transition to the metallic fluid phase of hydrogen under high pressure and high temperature by the laser heated diamond-anvil cell (LHDAC) up to 100 GPa and 2500 K. Compressed hydrogen was heated by IR laser with a thin gold foil, acts as the laser absorber. The temperature of hydrogen was determined from the thermal radiation spectrum from the gold foil at each laser power. The measured temperature vs. laser power curves showed the maxima at pressures above 80 GPa. These results indicate that the absorptance changed around the gold foil, which may due to a phase transition in hydrogen at the pressure and temperature. We confirmed that no anomaly in the curves was observed without hydrogen.

¹Japan Society for the Promotion of Science KAKENHI Grant Number 26000006

Mari Einaga
KYOKUGEN, Osaka University

Date submitted: 24 Dec 2014

Electronic form version 1.4