

Abstract Submitted
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Warm dense water in 100 GPa regime¹ NORIMASA OZAKI, Osaka University, TOMOAKI KIMURA, Ehime University, TAKUO OKUCHI, Okayama University, MARTIN FRENCH, University of Rostock, TOMOYUKI KAKESHITA, MIKA KITA, KOHEI MIYANISHI, Osaka University, RONALD REDMER, University of Rostock, TAKAYOSHI SANO, TOMOKAZU SANO, KATSUYA SHIMIZU, TOMOYUKI TERAJ, Osaka University, RYOSUKE KODAMA, Graduate School of Engineering, Osaka University — We have experimentally measured the pressure-volume-temperature equation-of-state and the optical reflectivity of water, which matches with the interior condition of the water-rich super Earth. Transition between the warm dense fluid water and the electronically conducting fluid, where its physical and chemical properties are changing dramatically (~ 100 GPa range) has been explored with experiments that can directly measure the temperature of the system. It is done by focusing strong laser onto a preloaded water. Understanding of the inner structure of such unique super-Earths would be a key constraint on the origin and evolution of exoplanetary systems.

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