Geodynamics Seminar

第309回ジオダイナミクスセミナー

Conductive fluid water generated by coupling diamond anvil cell and high power laser

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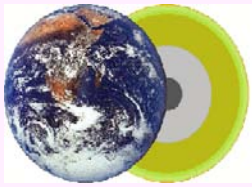
主催：愛媛大学地球深部ダイナミクス研究センター
日時：11/18（金）午後 4時30分～
場所：総合研究棟 4F 会議室



EHIME UNIVERSITY GRC GEODYNAMICS RESEARCH CENTER

Abstract

We determined pressure, density, and temperature of water shock-compressed up to ~260 GPa using a method coupled a diamond anvil cell with a high power laser at Osaka University. The equation of state (EOS) data were determined by the shock velocity and the brightness measurements. The temperature obtained with this coupling method was significantly lower than the single-shock temperature by increasing the initial pressure and density of water using the diamond anvil cell. We also measured optical reflectance of compressed water at the front of a shock wave. The EOS and the reflectivity data are consistent with the latest quantum molecular dynamics simulation. The obtained reflectivity indicates that the shock-compressed water is electronic conductive over 100 GPa and 10000 K.

詳細は当センターホームページ: http://www.ehime-u.ac.jp/~grc/をご覧ください
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