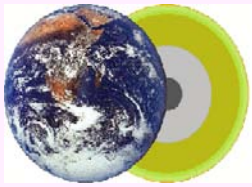
# Geodynamics Seminar

## 第345回ジオダイナミクスセミナー

**Melting experiments in diamond anvil cells under the CMB condition**

**Satoka Ohnishi (Msc. Student, Ehime University)**

主催：愛媛大学地球深部ダイナミクス研究センター
日時：12/21（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**

Interrogating physical processes that occur within the lowermost mantle is a key to understand Earth's evolution and present-day inner composition. Among such processes, partial melting has been proposed to explain mantle regions with ultralow velocities near the core-mantle boundary (CMB), but experimental validation at the appropriate temperature and pressure regimes remains challenging. A laser heated diamond anvil cell (DAC) has been widely used to study behavior of materials under the conditions of the Earth's deep interior. Although YAG, YLF lasers (wavelength is about 1 μm) have been generally used for laser heating DAC experiments, use of metal absorber is required to heat the mantle materials. In contrast, the $CO_2$ laser with wavelength of about 10 μm can directly heat silicate materials. The issue of an axial temperature gradient in the sample has been resolved by introducing the double-sided laser heating technique. However, the double-sided laser heating using the $CO_2$ laser is difficult because the wavelength of the laser is different from that of the visible light. In this study, we developed the double-sided heating system by using separate optical elements. In addition, I have improved an apparatus to charge with Ar gas which is used as the pressure medium. The details of the recent developments will be presented in the seminar.

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
問い合わせ先：桑山 靖弘（TEL:089-927-8408,e-mail:kuwayama@sci.ehime-u.ac.jp）