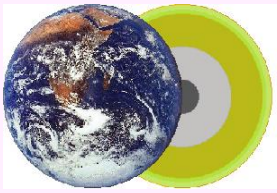
The 390th Geodynamics Seminar

Next-generation in situ high-pressure techniques using high-power laser and XFEL: Toward femtosecond/terapascal regime

Dr. Yoshinori Tange (Assistant Professor, GRC)

Date: 06.27.2014 (Fri) 16:30 ~
Venu: Meeting Room #486, Science Research Bldg 1, Ehime Univ.

日時：2014年6月27日(金)16:30～
場所：愛媛大学 総合研究棟Ⅰ 4階共通会議室



EHIME UNIVERSITY GRC GEODYNAMICS RESEARCH CENTER

Abstract

High-pressure in situ observation techniques are powerful tools to investigate Earth and planetary interiors. Since third-generation synchrotron facilities have been used in public widely, static high-pressure experiments using multianvil apparatuses or diamond anvil cells have allowed us to reproduce deep Earth interior and to investigate physical properties of constituent materials up to the P,T condition of center of the Earth. However, it is impossible to generate higher-pressures to TPa region, and to reproduce core conditions of gas giant in the solar system or deep interior of giant terrestrial planets in extrasolar systems by static compression method so far. Therefore, an experimental approach using high-power lasers has been considered to be a candidate technique to generate ultrahigh-pressures to TPa region. In addition, a new X-ray of free-electron laser enables us to conduct ultra-fast time-resolve observation within femtoseconds, and to observe materials even under laser-shocked conditions reproduced during nanoseconds. I will introduce these innovative high-pressure technology and recent progress in in situ measurements using XFEL at SACLA.

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：出倉 春彦（TEL:089-927-8408, e-mail:dekura@sci.ehime-u.ac.jp）