ニュース

実践的防災学国際セミナー開催のお知らせ

[教務情報] 2014年01月27日

■ ■ ■ セミナー情報 ■ ■ ■
講演題目: Mineral-physics and geochemical constraints on the composition of the Earth’s core
講演者名: ダニエレ・アントナンジェリ博士
所　　属: Institut de Mine’ralogie, de Physique des Mate’riaux, et de Cosmochimie (IMPMC)
開催日時: 2014年2月27日(木) 16:30 – 17:30
場　　所: 地球科学系研究棟5階　503号室
概　　要: 英文参照
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■ ■ ■ Seminar Information ■ ■ ■
*International Seminar of Global Disaster Mitigation I, II(Leading Program Student)
*Special Lecture on Earth and Planetary Dynamics(MC)
*Advanced Lecture on Earth and Planetary Dynamics(DC)

* T i t l e: Mineral-physics and geochemical constraints on the composition of the Earth’s core
* S p e a k e r: Dr. Daniele Antonangeli
* Affiliation:Institut de Mine’ralogie, de Physique des Mate’riaux, et de Cosmochimie (IMPMC)
* Date & Time: 16:30-17:30 on Thursday, February 27, 2014.
* P l a c e: Room #503, Earth Science Building

* Abstract:
The largest portion of the Earth’s interior cannot be directly sampled and are only probed by remote. This is particularly true for the core. Within this context, seismology plays a crucial role. Indeed, the study of seismic waves propagation and of the free oscillations provides remote sensing of density, sound velocity and attenuation of materials constituting the Earth’s interior. However, to be able to produce accurate structural and dynamical models of planetary interiors, these seismic observations have to be compared with measurements of density and elastic properties of candidate materials at high pressure and high temperature. Another important source of information comes from the distinctive pattern of siderophile elements observed in the Earth’s mantle, direct imprint of core formation. Accordingly, the experimental

determination of element partitioning at relevant pressure and temperature is critical to provide insights to issues such as the nature of accretionary materials, the thermal state of the early Earth, as well as the identity and concentration of light elements in the core.

In this talk I will present sound velocity and density measurements at high pressure and high temperature on solid iron and iron-alloys. Comparison with seismic models allows discussing nature and abundance of light elements alloyed to iron in the Earth's inner core. I will also present melting curves and density determination on liquid iron-alloys at megabar pressures. The results of these experiments will be compared with the density and compressibility of the Earth's outer core. Finally I will address silicate-metal liquid partitioning for siderophile elements as obtained combining laser heated diamond anvil cell techniques and elemental microanalysis on recovered samples.

The ensemble of the obtained results will be used to tentatively put forward a compositional model for the Earth's core.