Geodynamics Seminar

第332回ジオダイナミクスセミナー

_P-V-T_ EOS of Mg perovskite and liquid Fe: Toward refining thermal/chemical models of the Earth

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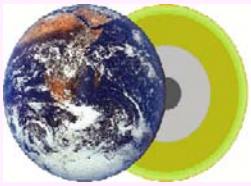
主催：愛媛大学地球深部ダイナミクス研究センター
日時：6/29（金）午後 4時30分～
場所：総合研究棟 4F 会議室



EHIME UNIVERSITY GRC GEODYNAMICS RESEARCH CENTER

Abstract

P-V-T equations of state (EOS) of the Earth's constituents are essential in the thermal and chemical modeling of the Earth's interior. *P-V-T* EOS provides internally consistent thermodynamic properties, such as density, adiabatic bulk modulus, thermal expansivity, the Grüneisen parameter, heat capacity, and so on. These are necessary to estimate chemical composition of the Earth's interior interpreting the seismic observation, and also enable us to evaluate temperature profiles in the deep interior. Recently, we precisely determined *P-V-T* EOS of $MgSiO_3$ perovskite by means of high-*P*,*T* experiments and found a mutual consistency between experiments and ab initio calculations in lower mantle phases. In addition, now we are investigating *P-V-T* EOS and thermodynamic properties of liquid Fe by ab initio molecular dynamics calculation under the core condition. On the basis of these new EOS of dominant components of the Earth's lower mantle and outer core, we refined adiabatic temperature profiles in broad pressures ranging 23-330 GPa. In the presentation, we will discuss the chemical composition of the lower mantle and outer core using the new EOS models.

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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