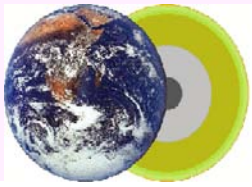
Geodynamics Seminar

第327回ジオダイナミクスセミナー

Equation of state and ultrasonic measurement of $MgSiO_3$ akimotoite

Chunyin Zhou (Ph.D. 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：4/27（金）午後 4時30分～
場所：総合研究棟 4F 会議室



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Abstract

Akimotoite, the ilmenite form of $MgSiO_3$ magnesium silicate, is stable at pressures between ~18 and 25 GPa and at relative low temperatures in the $MgSiO_3$ system. Experimental measurements on the thermo-elastic properties of akimotoite at high pressures and high temperatures in the mantle are so far limited (*Weidner and Ito, 1985; Renard et al., 1996; Wang et al., 2004*) except for recent theoretical simulations (*Li et al.,2009*). Particularly the shear elastic constant and its pressure and temperature dependences have not yet been directly measured by high pressure experiments. Here we carried out ultrasonic measurement on $MgSiO_3$ akimotoite polycrystalline with in situ X-ray diffraction at high pressures up to 25 GPa and temperatures to 700 K. Bulk and shear modulus and their pressure and temperature dependences at high pressures are determined as a result: $\boldsymbol{K}_{S0}$=217(3) GPa, $\boldsymbol{K}'_{S0}$=4.4(2), $\partial K_S/\partial T$= -0.017(6) GPa/K, $\boldsymbol{G}_{S0}$=132.4(5), $\boldsymbol{G}'_{S0}$=1.56(3), $\partial G_S/\partial T$= -0.017(6) GPa/K. The bulk and shear modulus are similar with previous Brillouin measurement (*Weidner and Ito, 1985*).

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）