

Structure of (Mg,Fe)O under highpressure and temperature

Tadashi Kondo[1], Eiji Ohtani[2], Takehiko Yagi[3]

[1] Sci., Tohoku Univ., [2] Institute of Mineralogy, Petrology, and Economic Geology, Tohoku University, [3] Inst. Solid State Phys, Univ. Tokyo

<http://rance.ganko.tohoku.ac.jp/>

High pressure behaviors of (Mg,Fe)O were studied by in situ X-ray diffraction method using laser-heated diamond anvil cell and synchrotron radiation (KEK-PF:BL-13A). Rhombohedral distortion was observed for all of (Mg_x, Fe_{1-x})O (X=0.0, 0.1, 0.2, 0.4, 0.6), but the initiation pressure of the distortion was depended on the Mg composition. B1(NaCl structure) phase was observed for FeO and (Mg_{0.1},Fe_{0.9})O at 80-100 GPa and about 1500 K. No futher transition was observed up to 2500 K. B8 phase (NiAs structure) was observed in only FeO composition at lower temperature condition. These results indicate that the stability field of NiAs phase is strongly depend on the existence of Mg component.