

## Structure of (Mg,Fe)O and SiO<sub>2</sub> at the lowermost mantle condition.

# Tadashi Kondo[1], Naoto Yamada[2], Eiji Ohtani[3], Takehiko Yagi[4]

[1] Sci., Tohoku Univ., [2] Depa.Min.Petro.Econ.Geol.,Tohoku Univ., [3] Institute of Mineralogy, Petrology, and Economic Geology, Tohoku University, [4] Inst. Solid State Phys, Univ. Tokyo

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

High pressure behaviors of (Mg,Fe)O and SiO<sub>2</sub> were studied by in situ X-ray diffraction method using diamond anvil cell and synchrotron radiation (KEK-PF:BL-13). Rhombohedral distortion was observed for all of (Mg<sub>x</sub>, Fe<sub>1-x</sub>)O (X=0.1, 0.2, 0.4, 0.6), but the initiation pressure of the distortion was depended on the Mg composition. No further phase change was observed up to 100 GPa and about 800 K by external heating. The CaCl<sub>2</sub>-like phase of SiO<sub>2</sub> was observed above 55 GPa and was stable at 80 GPa and about 2200 K under laser heating. These results indicate that the CaCl<sub>2</sub>-like phase is stable not only in cold slab but also in the surrounding lower mantle.