

Compressibilities of CaIrO₃-type high-pressure minerals

Shigeaki Ono[1]

[1] IFREE, JAMSTEC

It is known that the CaIrO₃-type structure is important to understand the dynamics at the base of the lower mantle, because the CaIrO₃-type silicate is a major phase in the D'' layer [1]. Therefore, phase transitions and elastic properties of CaIrO₃-type high-pressure minerals have been the object of intense experimental and theoretical investigations. Previous theoretical studies have already reported that the compressibilities and transition pressures of CaIrO₃-type MgSiO₃ and Al₂O₃. We performed the high-pressure experiment using a laser-heated diamond anvil cell, which made it possible to acquire precise data on the sample at high pressures and temperatures. The compressibilities of the transition pressures of MgSiO₃ and Al₂O₃ were determined in our study. Our results were in generally agreement with those from previous theoretical studies.

[1] Ono and Oganov, *Earth Planet. Sci. Lett.*, 236, 914-932 (2005).