

Metal/silicate partitioning of Ga and Ge at high pressure

Takaaki Kawazoe[1], Eiji Ohtani[2]

[1] Mineralogy, Petrology, and Economic Geology, Tohoku Univ, [2] Institute of Mineralogy, Petrology, and Economic Geology, Tohoku University

The mantle abundances of Ga and Ge are depleted when they are normalized with Mg and CI chondrite. In this study, the partition experiments of Ga and Ge were made at high pressure and temperature. Because Ga and Ge are volatile and siderophile elements, it is important to determine the partition coefficients of these elements in order to understand the relationship between the composition of the mantle and that of accreting materials.

The effect of oxygen fugacity on the partition coefficients of Ga was clearly observed. These partition coefficients are consistent with those calculated from the equation proposed by Righter and Drake (2000). The depletion of Ga in the mantle may be caused mainly by pre-accretionary evolution rather than metal/silicate equilibrium.