The study of trace heavy element zoning in grandite garnet from the Sampo mine, Okayama


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Trace heavy element (Sn, W, REE) zoning in grandite garnet from the Sampo mine is very unique because zoning position varies by each element from the core to rim. Since the trace elements substitute for major elements, we expected that the major element play a very important role in the zoning. Trace elements analyses have already performed by SR-XRF at SPring-8. Then, we analyzed the spatial distribution of the major elements by the two dimensional EPMA mapping and examined the relation between these elements. EPMA analysis revealed two dimensional distributions of the trace elements such as Mn and Sn as well as the major elements, Ca, Fe, Al, and Si. As can be seen in the area enclosed by the line in Fig.1, it is interesting that there is a negative correlation between Sn and Fe in the 6-fold site at the core, while it becomes positive at the outside rim.

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