

In situ measurement of the melting temperature in iron-alloy at high pressures

Yuichi Kosaka[1], Tadashi Kondo[2], Takeshi Sakai[2], Eiji Ohtani[3]

[1] Geology Sci., Tohoku Univ, [2] Sci., Tohoku Univ., [3] Institute of Mineralogy, Petrology, and Economic Geology, Tohoku University

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

Melting temperatures of Fe and FeS were measured from 4 GPa to 36 GPa using laser heating diamond anvil cell at Tohoku University and KEK-PF BL-13A. At Tohoku University, we judged the melting of the sample on the basis of a change of the laser absorption. In the X-ray diffraction experiments at KEK, we judged a melting of the sample on the basis of the distinction of the diffraction intensity from the sample. From these results, the origin of the significant

inconsistency of the reported data (references,*,*) was considered. Consequently, It became clear that the measurements of melting temperature are greatly depend on the temperature gradient in the

sample and migration of the melt portion. To improve those problems, we should be careful in sample location, focusing size of the heating spot, using double-sided heating and making the sample enough thin.