

Development of experimental setups for condensation experiments of enstatite and evaporation experiments of SiO_2 -MgO

*Aki Takigawa^{1,2}

1.Division of Earth and Planetary Sciences, Kyoto University, 2.The Hakubi Center for Advanced Research, Kyoto University

Enstatite whiskers elongated to the [001] axis were identified in chondritic porous interplanetary dust particles (CP-IDPs), Antarctica Micrometeorite (AMM), and samples from a comet Wild 2, while those elongated to the [001] axis are common in minerals occurred in the Earth and meteorites [1-4]. The condensation conditions of enstatite whiskers, however, have not been shown quantitatively. Moreover, the difference in the morphology of enstatite whiskers may reflect their different condensation conditions in the early solar system. In order to constrain on the formation conditions of enstatite whiskers with different crystal habits, we aim to construct the experimental setup that can control the condensation temperature, supersaturation ratio, and partial pressure of a hydrogen gas. In this presentation, we report the current status of our experimental setups and preliminary results of SiO_2 -MgO evaporation experiments.

[1] J. P. Bradley, D. E. Brownlee, D. R. Veblen, *Nature* 301, 473 (1983).

[2] Noguchi et al. (2008), MAPS, Abst# 5129.

[3] Ishii H.A. et al. (2008), *Science* 319, 447-450.

[4] Nakamura-Messenger et al. (2009), MAPS, Abst# 5330.

Keywords: experiment, condensation, evaporation, enstatite