

## Non-equilibrium condensation in the primordial solar nebula: formation of refractory metal nuggets

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We investigated non-equilibrium condensation of refractory metals in the primordial solar nebula in relation to the origin of Fremdlinges included in CAIs. To describe the nucleation process we adopted the semi-phenomenological model which achieves excellent agreements with experiments of nucleation, and derived new method in order to investigate the condensation of refractory metal elements. As a result, we found that the condensation temperatures are considerably low compared with the equilibrium condensation temperatures even if the cooling time is as large as 0.1 million yr. Our results suggest a possibility that Fremdlinges were formed in the primordial solar nebula.