特集：結晶成長メカニズム
（解説）

氷の円盤結晶の形態不安定化

古川　義純[1]・横山　悦郎[2]

Morphological Instability on an Ice Disk

Yoshinori FURUKAWA[1] and Etsuro YOKOYAMA[2]

Abstract

Recent investigations about the morphological instability, which occurs on the ice disk grown in supercooled bulk water, are reviewed on the basis of various ground experiments. It is well known that ice crystals grow as the circular disks at their initial growth stages and their growth trajectories are categorized into two types depending on the growth kinetics of basal planes. Despite of the trajectory types, the morphological instability on ice disk occurs at the edge plane immediately after its thickness reaches a critical value. A theoretical model based on the anisotropic kinetic effect is developed to explain the ice disk growth trajectories and the occurrence of morphological instability. The experimental results of ice free growth under the short-term microgravity condition are also summarized and finally the future perspective for the space experiment is briefly described.