特集：結晶成長メカニズム
（解説）

混晶系結晶成長における過冷却と過飽和

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Supercooling and Supersaturation in the Crystal Growth of Alloys

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Abstract

We have developed a new crystal growth method named the traveling liquidus-zone (TLZ) method and found that the TLZ method is promising for growing compositionally homogeneous alloy crystals such as $In_{1-x}Ga_xAs$. Our one-dimensional TLZ growth model predicts precisely the sample translation rate for growing homogeneous $In_{1-x}Ga_xAs$ crystals. In addition to the homogeneous crystal growth mode, supersaturation mode and supercooling mode exist in the TLZ method and these modes were examined experimentally and single crystals were found to be grown more easily when the supercooling controlled the growth process. Estimation of critical degree of supersaturation for avoiding polycrystallinity is expected for further development of the TLZ method.