

||||| 小特集 1 : マランゴニ対流 |||||
(解説)

中・高プラントル数流体における液柱内温度差
マランゴニ対流と粒子集合現象

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**Thermocapillary Convection and Partile Accumulation
in a Liquid Bridge of the Medium to High Prandtl Number Fluids**

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Abstract

Thermocapillary convection in a liquid bridge is induced by non-uniform surface tension distribution over the free surface owing to a temperature difference between two cylindrical rods sustaining the liquid bridge. Types of the induced flows were categorized into several regimes mainly according to the suspended particle motion in the bridge and the surface temperature variation. The particle accumulation structure (PAS) has been observed accompanied with the traveling wave oscillation in the liquid bridge. Besides, a feedback control upon nonlinear thermocapillary convections in a half-zone liquid bridge of a high Prandtl number fluid was conducted. The traveling wave, which may emerge in a long liquid bridge, is investigated in comparison with the hydrothermal wave, emerging in a thin liquid layer. The difference and the similarity in the oscillatory flow between long and short liquid bridge are discussed.