

||||| 小特集2：流体の不安定性 |||||  
(解説)

## 微小重力環境を利用した液体ジェットの不安定性の研究

梅村 章

### Microgravity Research on Liquid Jet Instability

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#### Abstract

A round liquid jet issued into an otherwise quiescent gas at a pressure far exceeding the critical pressure of the liquid has a thermodynamic surface state close to a critical mixing condition, yielding a vanishingly small surface tension and a large gas density at the surface. Thus, under microgravity conditions, large-Weber-number instability behaviors can be successfully observed using a near-critical-mixing-surface jet issued at low speed from a nozzle in laminar-flow form. Mechanisms for the excitation of Taylor instability immediately downstream of the nozzle exit and for the short-wavelength disintegration of the liquid jet are explored on the basis of microgravity experiment observations and theoretical considerations, in order to characterize the initiation of capillary instability and the breakup of liquid ligaments into drops involved in turbulent atomization.