東京大学グローバルCOEプログラム　機械システム・イノベーション国際拠点

東京大学 THE UNIVERSITY OF TOKYO

GMSI Global Center of Excellence for Mechanical Systems Innovation

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Mono-Size Alloy Droplets - Production, Characterization and Application

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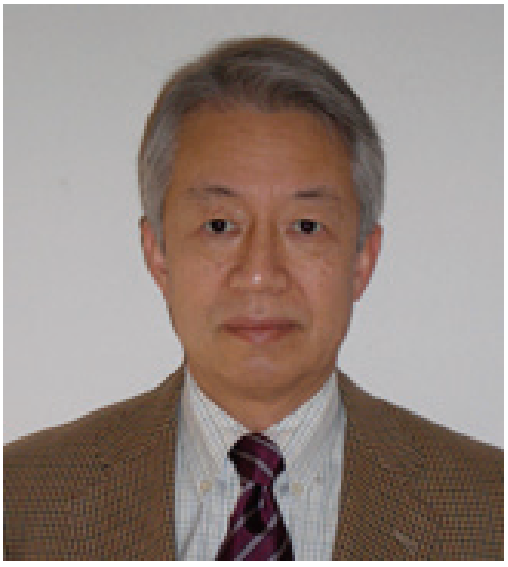
会場: 東京大学工学部 4号館 1階 205室（セミナー室）

要旨

Mono-size alloy droplets are produced by controlled capillary jet breakup, a droplet generating process also used in ink-jet printing technology. With regulated Rayleigh instability, controlled through the decoupled process parameters of jet diameter, mass flow rate, and perturbation frequency, mono-size droplets of desired diameter can be generated at high rates with virtually full yield. The uniform size of droplets assures nearly identical solidification paths for all the droplets generated under the same condition. This permits precise prediction of the motion and the thermal and solidification behaviors of the droplets through rigorous process and metallurgical modeling, which is also applicable to industrial thermal spray processes. The mono-size droplets can be in-flight solidified or deposited on a substrate to produce various forms of materials with novel rapid solidification microstructures. Areas of industrial applications are discussed.



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