Realization of a low carbon society through game changing technologies

Development of alloy powders by freeze-dry pulsed orifice ejection method (FD-POEM) for additive manufacturing

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Purpose :

In order to supply various kinds of powders of heat-resistant materials for 3D printing, we are challenging to develop a freeze-dry pulsed orifice ejection method (FD-POEM).

Abstract :

Powders for 3D printings are usually fabricated by conventional atomization processes which need to prepare ingots by melting in crucible. In this project, we are aiming to achieve tailor-made spherical powders with well-controlled compositions via the non-melting process by FD-POEM.

This process will be applied to additive manufacturing for ultra-high temperature materials. We will also evaluate the characteristics of the additively manufactured alloy builds. This project will contribute to the reduction of CO_2 gas emission from advanced heat engines.