DATE
David P. Field and Zongyi Ma
Editors-in-Chief
*Materials Characterization*

Please find enclosed my/our manuscript entitled "Study on the Influence of the Tungsten Particle Size on the Crystallization Kinetics of Tungsten-particle-reinforced Zr-based Bulk Metallic Glass Composites," which I/we request you to consider for publication as an *Original Full-length Research Article* in *Materials Characterization.*

This study investigated the effect of the tungsten particle size (30, 100, and 200 μm) on the crystallization kinetics and thermal stability of tungsten-particle-reinforced Zr-based bulk metallic glass composites (Wp/Zr-BMGCs) fabricated via spark plasma sintering. Using isothermal and non-isothermal differential scanning calorimetry combined with Kissinger, Ozawa and Johnson–Mehl–Avrami (JMA) kinetic models, we systematically elucidated the crystallization mechanism and quantified activation energies. Our results reveal the following:

- The crystallization kinetics of the Wp/Zr-BMGCs were strongly dependent on the heating rate, with all samples following a diffusion-controlled growth mechanism.
- The thermal stability exhibited a single-peak trend with respect to the particle size; the maximum activation energy (Ex) was found to be 334 kJ/mol at a tungsten particle size of 100 μm.
- Scanning electron microscopy, energy-dispersive X-ray spectroscopy, and X-ray diffraction confirmed that the tungsten particle size influenced the interfacial transition zone, which in turn governed nucleation and growth.

The identification of an optimal particle size and the elucidation of interfacial effects provided important insights into tailoring crystallization behavior and thermal stability in metallic glass composites. These findings are highly relevant to the *Materials Characterization* readership, offering mechanistic understanding and practical guidance for designing advanced structural materials with improved performance for defense and aerospace applications.

The manuscript has been carefully reviewed by an experienced editor whose first language is English and who specializes in editing papers written by scientists whose native language is not English.

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This manuscript has not been published elsewhere and is not under consideration by another journal. I/We have approved the manuscript and agree with submission to *Materials Characterization.* There are no conflicts of interest to declare.

I/We look forward to hearing from you at your earliest convenience.

Sincerely,

[AUTHOR]
[AFFILIATION]
[POSTAL_ADDRESS]
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