



Production and Properties of Light Metal Matrix Nanocomposites

Guest Editor:

Dr. Hajo Dieringa

Helmholtz-Zentrum Geesthacht,
MagIC - Magnesium Innovation
Center, Max-Planck-Straße 1,
21502 Geesthacht, Germany

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Message from the Guest Editor

Dear Colleagues,

Metal matrix nanocomposites (MMNCs) with a light metal matrix of aluminium, magnesium or titanium show excellent mechanical and physical properties. Even small amounts of nanoparticles can improve the properties of the matrix alloy in a remarkable way. This can be achieved by means of Hall-Petch or Orowan strengthening. As the positive effects, nanoparticles in degradable magnesium implants can also have functional characteristics. However, it is difficult to achieve a homogeneous distribution of the particles in a melt metallurgical production process. Due to the large surface area and the resulting high Van der Waals forces between the particles and the partially poor wettability of the particles with the molten metal, their deagglomeration is quite difficult. This Special Issue covers all aspects of the production and properties of light metal matrix nanocomposites. These can be powder-based or melt metallurgical processes, in situ reactions, mechanical or physical properties, chemical reactivity between matrix and particles, interfacial properties, formability, and machinability. Further relevant aspects are also welcome.

Dr. Hajo Dieringa
Guest Editor





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and Materials, University of
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30 Xueyuan Road, Beijing 100083,
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Message from the Editorial Board

Metallic materials play a vital role in the economic life of modern societies; contributions are sought on fresh developments that enhance our understanding of the fundamental aspects related to the relationships between processing, properties and microstructure – disciplines in the metallurgical field ranging from processing, mechanical behavior, phase transitions and microstructural evolution, nanostructures, as well as unique metallic properties – inspire general and scholarly interest among the scientific community.

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Metals Editorial Office
MDPI, St. Alban-Anlage 26
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