

## Special Issue

# Synthesis, Microstructure, and Properties of Lightweight Metal Matrix Composite Materials

### Message from the Guest Editors

Aluminum and magnesium alloys (lightweight alloys) play a crucial role in the development of engineering materials due to their ability to improve mechanical performance through different routes, such as alloying elements, variations in processing routes, and heat treatments. Furthermore, their ability to form composites using various reinforcing materials of different natures (such as oxides, carbides, nitrides, or carbon nanotubes) increases their range of applications. These composites can be strengthened by decomposing a super-saturated solid solution (forming a precipitate dispersion) or introducing insoluble phases into the metallic matrix.

This Special Issue will strengthen the current understanding, design, synthesis, and development of these materials, to provide a platform for combining high-quality research and innovative ideas and to bridge the gap between fundamental research and technological applications.

- aluminum-based composites
- magnesium-based composites
- characterization
- mechanical properties
- microstructure

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### Guest Editors

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Dr. Sergio Gonzalez Sanchez

Dr. Carlos G. Garay Reyes

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### Deadline for manuscript submissions

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## Metals

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## About the Journal

### 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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### Editors-in-Chief

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manuscripts are peer-reviewed and a first decision is provided to authors approximately 18 days after submission; acceptance to publication is undertaken in 2.6 days (median values for papers published in this journal in the first half of 2025).