

## Special Issue

# Advanced Characterization Techniques in Metallic Materials

### Message from the Guest Editor

The rapid advancement of metallic materials in industries ranging from aerospace to electronics demands increasingly sophisticated characterization techniques to understand their structure–property relationships across multiple length scales. From surface chemistry to bulk microstructure, modern characterization tools such as “X-ray photoelectron spectroscopy (XPS), electron microscopy (SEM/TEM), electron backscatter diffraction (EBSD), and atom probe tomography (APT)” are revolutionizing our ability to probe materials with unprecedented precision. Meanwhile, the integration of artificial intelligence (AI), machine learning (ML), and multi-modal data fusion is transforming raw analytical data into actionable insights, accelerating the discovery and optimization of next-generation metallic materials.

This Special Issue, "Advanced Characterization Techniques in Metallic Materials", aims to highlight cutting-edge developments in experimental methodologies that bridge the gap between atomic-scale surface analysis and macro-scale material performance.

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### Guest Editor

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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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