Special Issue

Advances in Microstructural Characterization of Metallic Alloys (2nd Edition)

Message from the Guest Editors

Microstructures are essential information in all fields of metallic, ceramic, and geoscientific work. Therefore, microstructural characterization is a key factor in understanding the behavior of any type of material.

Existing methods using optical techniques, X-ray, neutron and synchrotron diffraction, and electron back scattering diffraction provide a wide range of information about microstructure. This includes not only the 2D or 3D microstructure but also microstructural information such as defects, crystal orientations, residual stresses, grain size distribution, or grain boundary discussions.

The challenges both from the material side (new alloys, lighter materials, and high-strength materials) and from the new fields of application of known materials (energy technology, medical technology, and environmental technology) are increasing. Therefore, this Special Issue addresses all fields of modern and advanced investigations of microstructures, further developments of measurement methods to determine the microstructure, the comparison of measurement methods, the use for lifetime predictions, and damage assessments.

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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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