



Grain Boundary Segregation in Metals and Relevant Properties

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Message from the Guest Editors

It is believed that the segregation of solute atoms to the grain boundaries and other structural defects as well as the interaction between them can dictate the properties of metals such as strength, ductility and impact behaviour, corrosion and weldability, particularly for steels.

The Special Issue will cover the following:

- Modern characterization techniques to identify the atoms at the boundaries and the properties that they are influencing.
- Experimental techniques which can assess segregation.
- Competitiveness of elements in reaching the grain boundaries and their choice between segregation to particles in the matrix rather than to the boundaries.
- The role of ionic bonding in controlling the cohesive strength of the boundary.
- The role of dislocations, precipitation and vacant sites at the boundaries.
- Presentation of theories to explain why certain atoms which segregate to the grain boundaries in metals influence the bonding.
- Instances where segregation to the boundaries may influence properties not solely by the bonding but also by other means.
- Papers which show how grain boundary segregation can be used as a means of designing alloys to give better properties.





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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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