



Microstructural Characteristics and Mechanical Behavior of Austenitic Stainless Steel

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Message from the Guest Editor

Describing the microstructure–processing–properties relationship in austenitic stainless steels is of high interest and critical for efficient and economical design to meet application requirements.

This Special Issue will focus on the microstructure of austenitic stainless steels, with an emphasis on its correlation with strain-hardening behavior and involved deformation mechanisms. This Special Issue encourages a discussion of the effect of grain structure, substructure, dislocation networks, annealing and deformation twins, austenite stability, slip character, stacking fault energy and texture on the hardening behavior of austenitic stainless steels. Studies that focus on innovative and more cost-effective compositions, metastable stainless steels, and those subjected to different processing routes from conventional to new forms, such as additive manufacturing and thermomechanical treatments, are also invited. We hope that this issue contributes to expanding our knowledge regarding the strength–ductility balance of austenitic stainless steels, as well as suggesting ideas for future composition designs.





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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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