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Design and Application of Novel Oxide Dispersion Strengthened (ODS) Alloys

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Deadline for manuscript submissions:
closed (31 August 2022)

Message from the Guest Editors

Dear Colleagues,

The increase in efficiency of nuclear reactors places structural materials in high demand as they can withstand the required harsh working conditions, such as high temperature oxidation, irradiation, and stress corrosion. Oxide dispersion strengthened (ODS) steels have potential for application as the structural materials of advanced nuclear reactors. Advances in the fabrication processes, microstructure characterization, and mechanical properties of ODS steels form the scope of this Special Issue. Moreover, the concept of ODS is not restricted to Fe-based steels. Other alloys, such as nickel, aluminum, and cobalt alloys can be also considered for strengthening as an approach to optimize the overall performance of different materials.

For this Special Issue, we welcome articles that focus on the fabrication process, microstructure characterization, and mechanical properties of ODS alloys. Technology improvements, especially innovations that lead to improved mechanical properties of ODS alloys, for the production of high-performance ODS alloys are of particular interest.

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Message from the Editor-in-Chief

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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