Special Issue

Recent Advances in Metals and Alloys for Nuclear Applications

Message from the Guest Editor

The development of metallic fuel or structural materials for nuclear reactors has been of great significance for the safety and reliability of nuclear power plants. The reactor is designed to be used for several dozens of years under an extreme core environment. Designing alloys to withstand extreme environments, characterized by high temperatures or strong irradiation, in the reactor core is a fundamental challenge for materials scientists.

For this Special Issue, we welcome articles that focus on the fabrication, characterization, and theoretical study of metallic fuel, advanced nuclear fuel cladding, and structural alloys in the field of advanced nuclear systems. Innovative research on additive manufacturing of superalloys for nuclear applications and multiscale research methods that bridge the microstructure and properties of these materials are of particular interest.

- nuclear fuel
- structural alloys
- structural characterization
- fabrication process
- in-pile performance
- extreme environment
- irradiation
- corrosion

Guest Editor

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About the Journal

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.

Editor-in-Chief

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