

Special Issue

Oxidation of Metallic Nuclear Fuels and Cladding

Message from the Guest Editor

Metals, alloys, and intermetallics are of high interest to the nuclear industry because of their extensive use in nuclear fuel assemblies. The development of novel metallic nuclear fuels, fuel claddings, and coating materials is driving the deployment of accident tolerant fuel (ATF) technology into current generation nuclear power plants. In addition, new high-density metallic fuels (HDFs) offer the possibility to replace highly enriched uranium fuel (HEU), which is currently used in test reactors, with lower enriched fuels, with the aim of reducing proliferation risks. However, through this deployment, these novel metallic fuels, cladding, and coating materials may be exposed to high temperature oxidative atmospheres during normal operation or in off-normal accident scenarios, particularly in water-cooled nuclear reactors. In this Special Issue of *Metals*, we encourage contributions that report on any of these areas, as well as submissions reporting any recent developments in the understanding of the oxidation behaviour of metallic nuclear fuel and cladding materials for applications in current or advanced nuclear technologies.

Guest Editor

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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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