



Effects of Radiation on Microstructure and Properties of Metallic Materials

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Message from the Guest Editor

Nuclear energy has been an important part of today's clean energy. However, structural materials in the nuclear reactor must face irradiation from intense particles for a long time, which will lead to the deterioration of the material properties. Energetic particle irradiation into materials can generate atomic displacement, causing significant microstructural alteration, which ranges from crystalline to amorphous phase transitions to the creation of high concentrations of point defects or solute aggregates in crystal lattices. These microstructural changes often lead to significant changes in the physical and mechanical properties of irradiated materials. Such effects induced by irradiation vary by type, particle energy, and material 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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