Special Issue

Mechanical Testing of Nuclear Materials in Small Length Scales

Message from the Guest Editors

In recent years, small-scale mechanical testing techniques, such as nanoindentation, micro compression testing, micro-tensile testing and others have become increasingly popular in the nuclear materials community for several reasons. Firstly, ion irradiation is being increasingly used as an alternative method of simulating radiation damage in materials, reducing the duration of the radiation experiments by many orders of magnitude. Small-scale testing allows one to assess the mechanical properties of ion-irradiated materials which otherwise would not be accessible due to limited beam penetration. Secondly, in the case of neutron irradiation, it reduces the amount of active material that one must handle due to reduced sample size. Thirdly, it allows one to target specific microstructural regions of interest, be they individual grain boundaries, oxide layers or phases and orientations. The editors solicit papers with original research or review papers in these and related topics for publication in this Special Issue on “Mechanical Testing of Nuclear Materials in Small Length Scales”.

Guest Editors

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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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