Special Issue

Advances in Irradiation Effects of Materials for Current and Future Reactors

Message from the Guest Editors

Irradiation ageing is one of the main degradation mechanisms of the structural and functional materials used in nuclear and fusion devices. The most discussed irradiation degradation is the embrittlement of power reactor steel due to fast neutron radiation. The radiation and temperature toughness requirements for future fusion devices strongly exceed the levels of presently operating nuclear equipment. Ferrite–martensitic steel (containing 9–14% Cr) and ODS (oxide dispersion-strengthened) steel, Tungsten, CuCrZr, zirconium alloys, and HEA (high-entropy alloys) have been tested in laboratories to satisfy the design requirements. This Special Issue aims to cover recent progress and new developments in the irradiation effect and technology of nuclear materials, including but not limited to the following topics: irradiation embrittlement, RPV steel, RAFM steel, the transmutation ageing of structural materials, irradiation-assisted stress corrosion, the operation lifetime of nuclear devices, and advanced structural materials for fusion power plants.

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Message from the Editor-in-Chief

Materials (ISSN 1996-1944) was launched in 2008. The journal covers twenty-five comprehensive topics: biomaterials, energy materials, advanced composites, advanced materials characterization, porous materials, manufacturing processes and systems, advanced nanomaterials and nanotechnology, smart materials, thin films and interfaces, catalytic materials, carbon materials, materials chemistry, materials physics, optics and photonics, corrosion, construction and building materials, materials simulation and design, electronic materials, advanced and functional ceramics and glasses, metals and alloys, soft matter, polymeric materials, quantum materials, mechanics of materials, green materials, general. *Materials* provides a unique opportunity to contribute high quality articles and to take advantage of its large readership.

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