

Neutron-Irradiated Microstructure of Light Water Reactor Materials

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The safe, long-term operation of light water reactors for power generation can be limited by irradiation-induced aging of the materials, which is manifested in the microstructure via a number of phenomena. This invited paper will give an overview of irradiation-induced microstructural phenomena present in reactor pressure vessel and reactor internals materials. It serves as an introduction to the subsequent presentations in the session focused on particular aspects of irradiation microstructure, by utilizing illustrations from various materials at different dose levels from different reactor types and components. The paper includes a particular focus on some practicalities associated with examining microstructures of radioactive materials.