

2023 RaDIATE Collaboration Meeting



Contribution ID: 25

Type: not specified

Research and development of irradiated materials from targets and proton beam windows at the Spallation Neutron Source

Several research and development projects with samples removed from irradiated components from the Spallation Neutron Source (SNS) are underway or planned. Current projects are focused on understanding atypical radiation-induced phenomena that were observed in 316L stainless steel and solution annealed Inconel 718 after irradiation in components at the SNS. Tensile testing with digital image correlation analysis showed localized deformation band occurred in irradiated 316L specimens during testing and in some specimens the band propagated along the specimen gauge section as a deformation wave. Tensile results of Inconel 718 specimens from a proton beam window (PBW) showed an increase in elongation values with an increase in dose. Characterizations are underway to better understand these phenomena are underway including analytical electron microscopy, differential scanning calorimetry, and thermal desorption spectrometry. Results from these experiments will be presented along with plans to perform tensile tests and microscopy on specimens from irradiated 6061-T6 samples from a PBW. Options for collaborations with RaDIATE participants will also be presented and discussed.

Primary author: MCCLINTOCK, David (ORNL)

Presenter: MCCLINTOCK, David (ORNL)

Session Classification: Talks