Contribution ID: **21** Type: **Invited Talk**

LBNF Nu Beamline Radiation Damage R&D Needs

Thursday, 29 June 2023 15:00 (30 minutes)

The Long Baseline Neutrino Facility (LBNF) Project, currently under final design, will deliver neutrino beam to the Deep Underground Neutrino Experiment (DUNE) utilizing 120 GeV proton beam on a graphite target at 1.2 MW in 2031 and up to 2.4 MW by 2036. The LBNF neutrino beamline utilizes several beam intercepting devices that are being designed and built to withstand the cyclic thermal shock of the pulsed beam and provide thermal management of the absorbed power. Although operating parameters have been chosen to be within the realm of previous operational experience with neutrino targets (primarily NuMI at Fermilab and T2K at J-PARC), radiation damage effects on critical properties of the chosen materials are still not fully understood, especially effects on fatigue and dimensional stability. Thus, the LBNF irradiation environment will be challenging and requires an ongoing campaign of R&D to enable stable operations at 2+ MW primary beam power. This talk will introduce the irradiation conditions for the LBNF target, target windows, and absorber and the critical material properties which must be researched. In addition, a brief discussion of how R&D studies can be incorporated into accelerator target facility operations to support codes and standards compliance efforts, which are increasingly being expected at US national laboratories.

Primary author: HURH, P. (FNAL)

Presenter: HURH, P. (FNAL)

Session Classification: Talks