IPAC 2015 Abstract

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Title **Verification of the Neutron Mirror Capabilities in MCNPX via McStas Comparison and Measurements at the EIGER Instrument Beamline at the Swiss Spallation Neutron Source (SINQ)**

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Abstract The EIGER triple-axis thermal neutron spectrometer beamline contains “supermirror” neutron guides, which preferentially reflect low-energy neutrons toward the EIGER spectrometer that come from the ambient temperature, light water neutron source in SINQ. Gold foil and neutron imaging plate measurements have been performed at the EIGER beamline in 2013. This process can be modeled from incident proton to thermal neutron exiting the EIGER beamline by using the neutron mirror capabilities of MCNPX, which should be more accurate than simulations with simplified neutron source distributions and geometry representations. In the first step, the neutron imaging plate results are modeled in McStas to deduce the neutron mirror reflectivity parameters. Secondly, these parameters are used in MCNPX to reproduce the activation measured from the gold foil irradiation, therefore verifying the neutron mirror modeling capabilities in MCNPX.

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Footnote

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