

Abstract Submitted
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Simulation Studies of Muon Induced Neutron Background for a Homestake Dark Matter Experiment RIZNIA JASIM, ANTON EMPL, ED HUNGERFORD, University of Houston — Fast neutrons from cosmic-ray muons, are an important background for dark matter experiments. Hence, to predict the sensitivity of a Homestake dark matter experiment, the background from neutrons must be precisely characterized. A detailed analysis of muon induced neutron background at the Homestake Mine is performed using the most recent version of the particle transport code, FLUKA. The results of the muon induced neutron flux, energy distribution, angular distribution and multiplicity at 4850 level in Homestake Mine is reported. The profile of the neutrons at the rock/laboratory boundary obtained from the simulation can be used as an input to study neutron shielding and to design a veto system for a Homestake dark matter experiment.

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