

Abstract Submitted
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External Background Characterization of Homestake Mine for DUSEL¹ KEENAN THOMAS, DONGMING MEI, The University of South Dakota, FREDERICK GRAY, Regis University, CHAO ZHANG, The University of South Dakota, HOMESTAKE BACKGROUND CHARACTERIZATION TEAM — The Homestake Mine in Lead, South Dakota has been selected as the site for the Deep Underground Science and Engineering Laboratory (DUSEL). The former gold mine will provide ample underground facilities for low background experiments such as the detection of neutrinos and dark matter. Although the earth overburden provides shielding of cosmic rays, there are still sources of external background underground that are of concern to early experiments while the mine is in the initial stages of renovation. The goal of this project is to measure sources of external background underground including muons, neutrons, gamma-rays, and radon concentrations in the air. The information produced by these measurements is of use for future experiments in the design of shielding and infrastructure such as ventilation systems for radon removal. This paper will report the results regarding muon flux, neutron flux, gamma-ray flux, as well as radon at the different levels.

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