

Abstract Submitted
for the APR18 Meeting of
The American Physical Society

Cosmogenic Backgrounds for the DarkSide Experiment PARTH SINGH, University of Houston, DARKSIDE COLLABORATION — The DarkSide-50 (DS-50) experiment is designed to directly detect weakly interacting massive particle (WIMP) dark matter. Located deep underground at LNGS, Italy; the heart of the detector system is a dual phase liquid argon time projection chamber. It is nested inside a liquid scintillator veto, which is further placed inside a water Cherenkov detector, both to suppress and identify background. Cosmic muon interactions with the rock surrounding the cavern lead to neutron production which forms an important class of background for detectors searching for rare events. WIMP direct detection experiments like DS-50 must be able to distinguish a neutron recoiling with an argon nucleus from a WIMP recoil. Determining the efficiency of the DS-50 veto system to identify such events can be achieved through simulation studies, as actual data is not sufficient. This work will be described, along with simulation work for the proposed DarkSide-20K (DS-20K) experiment, which will have a fiducial mass 400 times that of DS-50.

Parth Singh
University of Houston

Date submitted: 11 Jan 2018

Electronic form version 1.4