

Abstract Submitted
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Background Characterization in the DarkSide-50 Dark Matter Detector PABLO MOSTEIRO, Princeton University, DARKSIDE COLLABORATION — One of the most active areas of interest in the field of particle astrophysics is the search for dark matter in the form of Weakly Interacting Massive Particles (WIMPs). The DarkSide program consists of a series of incrementally larger and more sensitive two- phase argon Time Projection Chambers (TPCs) that aim to discover WIMPs through their interactions with nuclei. One of the main challenges in the development of such detectors is the characterization and reduction of external and internal backgrounds. I will present a detailed summary of expected sources and rates of radioactive and cosmogenic background in DarkSide-50, a 50kg detector that will use argon derived from underground sources, with a low level of ^{39}Ar . Background calculations are based on recent studies done with the Monte Carlo simulation toolkit Geant4. Emphasis will be placed on the boron-loaded liquid scintillator neutron veto, one of the key technologies of DarkSide-50.

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