

Abstract Submitted
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Active Neutron Veto Shield Design for SuperCDMS-SNOLAB

HANG QIU, Southern Methodist University, SUPERCDMS COLLABORATION
— Protection against neutron backgrounds is one of the key issues for the next generation SuperCDMS direct dark matter detection experiment that aims at exploring the 10^{-46} cm² cross section region for spin-independent interactions of Weakly Interacting Massive Particles (WIMPs) with nucleons. Estimation of the background from radioactive processes is a crucial task for the current experiment stage and for designing future large-scale detectors. An active neutron veto would make the next generation of dark matter experiment more robust, improving the credibility of a dark matter detection claim based on the observation of a few recoil events. SuperCDMS is investigating the feasibility of adding a liquid scintillator active neutron veto, loaded with high neutron capture cross section isotopes, to the SuperCDMS SNOLAB shield design. This system not only will allow us to reject neutron-induced backgrounds, but also will provide an in-situ measurement of the neutron flux near the detector. I will report the status of ongoing studies related to the design and construction of such a veto.

Hang Qiu
Southern Methodist University

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