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## Photo-neutron Calibrations of SuperCDMS Dark Matter Detectors

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The Super Cryogenic Dark Matter Search (SuperCDMS) experiment has used data taken at the Soudan Underground Mine between 2011-2015 to search for nuclear recoils near 1 keV. Nuclear recoils at this energy constrain the possibility of low-mass Weakly Interacting Massive Particles (WIMPs). The Soudan SuperCDMS detectors produced a world-leading limit on the cross section of spin-independent WIMP-nucleon interactions at low masses ( $\sim 1.6\text{-}5.5 \text{ GeV}/c^2$ ). The main uncertainty in the latest published limit is in the understanding of the nuclear recoil energy scale.

To improve this understanding, calibrations took place on the SuperCDMS detectors using  $^{124}\text{Sb}/^9\text{Be}$  and  $^{88}\text{Y}/^9\text{Be}$  photo-neutron sources. The sources used produce quasi-monoenergetic neutrons that are being used to calibrate the nuclear recoil energy scale in the range of 1 keV to 8 keV. Extracted results of the ionization yield will then be compared to predictions from the Lindhard ionization yield model. This is the default model that is well tested at high energy but not at low energy. This talk will discuss the motivation for this calibration along with a description of the current status of the analysis.

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