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Photoneutron Calibration of SuperCDMS Soudan iZIP detectors

VIJAY IYER, National Institute of Science Education and Research, HBNI, SUPERCDMS COLLABORATION — Numerous astrophysical observations have indicated that dark matter constitutes about 27% of the mass and energy content of the universe. Weakly Interacting Massive Particles (WIMPs) are considered the most likely candidates for dark matter. The SuperCDMS (Cryogenic Dark Matter Search) collaboration has pioneered the use of low temperature solid state detectors to search for the rare scattering of WIMPs with an atomic nucleus. An accurate understanding of the nuclear recoil scale is necessary for establishing the WIMP mass scale. Monoenergetic neutrons produced by gamma ray excitation (hence photoneutrons) can be used to calibrate our detectors. This talk will describe SuperCDMS detectors, discuss the current status and outlook of the photo-neutron calibration that was performed in the Soudan experiment.

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