Abstract Submitted
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Measurement of Scintillation Efficiency of Low Energy Nuclear Recoils in Liquid Argon H. CAO, H.O. BACK, F. CALAPRICE, C. GALBIATI, P. MEYERS, B. ROSSI, Princeton University, L. GRANDI, University of Chicago, W.H. LIPPINCOTT, B. LOER, F. DEJONGH, S. PORDES, J. YOO, C. KENDZIORA, D. MONTANARI, T. ALEXANDER, Fermilab, A. COCCO, G. FIORILLO, INFN-Napoli, Italy, H. WANG, Y. MENG, University of California, Los Angeles, C.J. MARTOFF, C. LOVE, Temple University, P. COLLON, W. TAN, University of Notre Dame, C. GHAG, L. MANENTI, University College London, SCENE COLLABORATION[1] — Particle detectors based on liquid argon (LAr) have become an appealing option for direct WIMP detection. The detection threshold for recoiling Ar nuclei produced by WIMPs required precise determination, as the existing measurements of the relative scintillation efficiency of nuclear recoils carried large uncertainties at low energies. We have measured the scintillation efficiency of nuclear recoils with kinetic energy between 5.8 and 60 keV relative to that of 122 keV gamma rays from ^{57}Co. Our experiment used a compact LAr time projection chamber in a monochromatic pulsed neutron beam obtained through ^{7}Li(p,n)^{7}Be reaction. The scintillation efficiency was also measured under electric field up to 1.0 kV/cm.

[1]Scintillation Efficiency of Noble Elements

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