

Abstract Submitted  
for the APR07 Meeting of  
The American Physical Society

**Nuclear recoil discrimination in the Xenon10 detector.** AARON MANALAYSAY, University of Florida, XENON COLLABORATION — The Xenon10 detector searches for Cold Dark Matter in the form of Weakly Interacting Massive Particles (WIMPs) using a dual-phase liquid xenon time projection chamber, which simultaneously measures energy deposition in the form of scintillation (S1) and ionization (S2). The single most important feature of this detector is its ability to perform nuclear recoil discrimination, allowing one to veto gamma rays due to background sources. The differing track structures of electronic recoils (gammas, betas, etc.) and nuclear recoils (WIMPs, neutrons) produce characteristically different ratios of S2 to S1 for a given recoil energy. I present the actual discrimination performance of this detector in the context of a direct WIMP search, based on in situ gamma and neutron calibrations.

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Date submitted: 10 Jan 2007

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