

Abstract Submitted
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Response of XENON10 to Neutrons: Comparison of Monte Carlo and data.¹ ANGEL MANZUR, Yale University, XENON COLLABORATION — The XENON experiment uses liquid xenon (LXe) as the target medium for detecting Cold Dark Matter in the form of Weakly Interacting Massive Particles (WIMPs). Event by event discrimination is achieved by simultaneously measuring the ionization and scintillation signal produced by nuclear recoil events. The discrimination power is calibrated based on neutron and gamma calibrations done using external AmBe and Cs-137 sources. A WIMP interacting in the LXe is expected to have a similar signature in the detector as the elastic scattering of a neutron with energy of a few MeV. The comparison of Monte Carlo simulations with neutron calibration data gives us a deeper understanding of the detector, calibrates nuclear recoil acceptance fraction for different background cuts, and helps to optimize the data cuts to achieve best WIMP sensitivity. Here we present a comparison between the Monte Carlo simulations done for Xenon10 with results from the neutron calibrations.

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