

The LUX Experiment: Background Modeling and Sensitivity Projections

Wednesday, September 11, 2013 7:30 PM (2h 30m)

The LUX experiment takes advantage of the self-shielding capabilities of liquid xenon to create a nearly background-free fiducial volume. This will allow for unambiguous detection of WIMP-like nuclear recoils. LUX has been designed with the goal of $< 10^{-3}$ event/kg/keV/day, corresponding to < 1 background event in 300-livedays, and a virtually background-free month-long initial science run. The ultimate 90% exclusion WIMP limit of the experiment after a 30000-kg-day run is projected to reach 4×10^{-46} cm² for a WIMP mass of 100-GeV. This talk will discuss background projections from the LUX material screening program, as well as modeling of cosmogenic and intrinsic background sources in the Xe.

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