

Halo uncertainties in electron recoil events at direct detection experiments

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The dark matter direct detection rates are highly correlated with the phase space distribution of dark matter particles in our galactic neighborhood. In this talk, we will discuss the impact of astrophysical uncertainties on electron recoil events at the direct detection experiments with Xenon and semiconductor detectors. We find that within the standard halo model there can be up to $\sim 50\%$ deviation from the fiducial choice in the exclusion bounds from these observational uncertainties. For non-standard halo models, we report a similar deviation from the fiducial standard halo model when fitted with state-of-art N-body simulation while even larger deviations are obtained in case of the observational uncertainties.

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