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## Lepton-Nucleus Cross Section Measurements for DUNE with the LDMX Detector

We point out that the LDMX (Light Dark Matter eXperiment) detector design, conceived to search for sub-GeV dark matter, will also have very advantageous characteristics to pursue electron-nucleus scattering measurements of direct relevance to the neutrino program at DUNE and elsewhere. These characteristics include a 4-GeV electron beam, a precision tracker, electromagnetic and hadronic calorimeters with near  $2\pi$  azimuthal acceptance from the forward beam axis out to  $\sim 40^\circ$  angle, and low reconstruction energy threshold. LDMX thus could provide (semi)exclusive cross section measurements, with detailed information about final-state electrons, pions, protons, and neutrons. We compare the predictions of two widely used neutrino generators (GENIE, GiBUU) in the LDMX region of acceptance to illustrate the large modeling discrepancies in electron-nucleus interactions at DUNE-like kinematics. We argue that discriminating between these predictions is well within the capabilities of the LDMX detector.

### Mini-abstract

LDMX will measure electron-nucleus scattering relevant to long-baseline oscillation program

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