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## Prospects for Low Mass Dark Matter Searches at DUNE

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Design goals for future neutrino experiments, including high-intensity proton beams and precise detectors, provide an opportunity to explore physics beyond the standard model. Dark matter accounts for 27% of our universe, but its particle nature remains to be uncovered, and many efforts have been made to elucidate the properties of dark matter.

The DUNE experiment uses high-intensity 120 GeV proton beams and a target system made out of graphite. The high-intensity proton beam interactions in the target will produce copious amounts of photons. Through vector portal processes, these photons may couple to dark photons that subsequently decay to dark matter at the sub-GeV mass scale and its footprints can be detected by a precision Near Detector complex located at 574m downstream of the target facility.

In this presentation, I will discuss the concept and method of the analysis searching for low mass dark matter in DUNE, and present estimated sensitivities for this search, along with prospects for further improvements in this type of probes.

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