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Light Dark Matter with DUNE-PRISM

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The upcoming DUNE Experiment will depend on precision measurement of neutrino fluxes and cross sections at its near detector in order to deliver on its stated neutrino physics goals, such as measurements of CP violation and the neutrino mass ordering, using its far detector. To this end, the DUNE-PRISM concept has been proposed – it consists of moving the near detector up to 36 m off-axis, allowing for measurements of different components of the neutrino flux. In addition, the DUNE near detector and PRISM concept allow for searches for new physics, such as light dark matter produced in the neutrino beam.

In this talk, I will discuss the capability of DUNE to search for light dark matter in the Near Detector facility. I will show that DUNE, particularly by leveraging the DUNE-PRISM concept, will allow for substantial improvement over existing searches for such dark matter, competitive with dedicated dark matter experiments in this regime.

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