

## Searching for dark sector phenomena at LArTPC fixed target experiments

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A significant region of parameter space for weakly interacting massive particle dark matter has been ruled out by direct detection experiments. New models have suggested extensions to the Standard Model, known as dark sectors, proposing sub-GeV dark matter candidates which could have eluded most direct detection experiments. In this talk, I will discuss searches for evidence of these dark sector phenomena using high energy neutrino beams directed at liquid argon time project chamber (LArTPC) neutrino detectors. LArTPCs offer precision event reconstruction, making the search for unique final state topologies characterized by dark sector phenomenon possible. I will outline a preliminary Monte Carlo sensitivity study using a quasi-model independent search for dark sector phenomena. Results are extended to the Short Baseline Neutrino (SBN) program at Fermilab to quantify the viability of such a search.

**Primary author:** Ms RUSSELL, Brooke (Yale University)

**Presenter:** Ms RUSSELL, Brooke (Yale University)

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