Exploring New Physics at nuSTORM

The Neutrinos from Stored muons (nuSTORM) facility has been proposed to measure $\nu_e N$ and $\nu_\mu N$ cross section very precisely. nuSTORM shows excellent promise to search for the existence of light sterile neutrinos that have been postulated to explain the LSND and MiniBooNE results with Charged Current events in a magnetized Iron calorimeter detector. In this study we study the effect of Neutral current events in conjunction with the CC events at the detector to probe the sterile neutrino parameters. We also explore the ability of nuSTORM to resolve the various non-unitarity parameters like $\alpha_{11}$, $|\alpha_{21}|$ and $\alpha_{22}$ considering both charged current and neutral current events.

Mini-abstract

Exploring sterile neutrino & non-unitarity at nuSTORM with CC and NC events using the MIND detector

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