

FORMOSA & Forward-DUNE - Looking Forward to Millicharged Dark Sectors and New Neutrino Physics

Monday, November 9, 2020 7:10 PM (10 minutes)

We identify potentially the world's most sensitive location to search for millicharged particles in the 10 MeV to 100 GeV mass range: the forward region at the LHC. We propose constructing a scintillator-based experiment, FORward MicrOcharge SeArch (FORMOSA) in this location, and estimate the corresponding sensitivity projection. We show that FORMOSA can discover millicharged particles in a large and unexplored parameter space, and study strongly interacting dark matter that cannot be detected by ground-based direct-detection experiments. The newly proposed LHC Forward Physics Facility (FPF) provides an ideal structure to host the full FORMOSA experiment.

This talk is based on arXiv:2010.07941 & arXiv:1812.03998.

I will also discuss the new idea of studying neutrino physics at FPF with the newly proposed Forward-DUNE experiment.

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