

Phenomenology 2021 Symposium



Contribution ID: 1435

Type: **Axions & ALPs**

Heavy Axion at DUNE

Monday 24 May 2021 16:45 (15 minutes)

While the QCD axion is often considered to be necessarily light (eV), recent work has opened a viable and interesting parameter space for heavy axions, which solve both the Strong CP and the axion Quality Problems. These well-motivated heavy axions, as well as the generic axion-like-particles, call for explorations in the GeV mass realm at collider and beam dump environments. The primary upcoming neutrino experiment, Deep Underground Neutrino Experiment (DUNE), is simultaneously also a powerful beam dump experiment, enabled by its multipurpose Near Detector (ND) complex. In this study, we show with detailed analyses that the DUNE ND has a unique sensitivity to heavy axions for masses between 20 MeV and 2 GeV, complementary to other future experiments.

Summary

Authors: LIU, Zhen (University of Minnesota); KELLY, Kevin (Fermilab); KUMAR, Soubhik (University of Maryland)

Presenter: LIU, Zhen (University of Minnesota)

Session Classification: Axions & ALPs II