

# Phenomenology 2021 Symposium



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## Heavy Axion at DUNE

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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

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

**Presenter:** LIU, Zhen (University of Minnesota)

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