

# Phenomenology 2023 Symposium



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## Distinguish axion models with SPARC

*Tuesday 9 May 2023 15:15 (15 minutes)*

In this talk I will first discuss how rotation-dominated galaxies can be used to constrain the size of solitons inside galaxy dark matter halos. I will discuss how this confronts the theoretical expectation, which leads to a robust constraint on the fraction of ultralight dark matter in a wide mass range from  $10^{-24}$  eV to  $10^{-20}$  eV. I will then discuss how this bound is affected by the Peccei-Quinn scale and its sensitivity to the type of axion potential. The talk will be based on the work 2111.03070 as well as work in preparation.

**Author:** Dr SUN, Chen (Los Alamos National Laboratory)

**Presenter:** Dr SUN, Chen (Los Alamos National Laboratory)

**Session Classification:** Axion II

**Track Classification:** Axion and ALP