

HyperLSW – Experimental Setups for Determining the Amount of Axion Dark Matter After a Discovery

Wednesday, 10 July 2024 16:00 (20 minutes)

QCD axions and axion-like particles are increasingly popular dark matter (DM) candidates, and experiments are closing in on the most interesting regions of parameter space. Still, even after a discovery in a haloscope, we would usually not be able to determine their local DM abundance. In this talk, I will introduce HyperLSW, a class of ambitious light-shining-through-a-wall follow-up experiments to break the degeneracy between the axion-photon coupling and the axion's local DM abundance. I will estimate the sensitivity of such experiments, showing that they can reach the QCD axion band, by addressing their inherent challenges and demonstrating their feasibility. To conclude, I will briefly comment on the post-discovery potential of axions as messenger particles in astrophysics.

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