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Axion Dark Matter in the Time of Primordial Black Holes

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In this talk, we present the phenomenology of QCD axion dark matter in a nonstandard cosmological era triggered by PBHs that fully evaporate before the onset of BBN. We show that PBHs have a strong impact on the dark matter produced via the misalignment mechanism. First, the oscillation temperature of axions reduces if there is a PBH dominated era, and second, PBH evaporation injects entropy, diluting the axion relic abundance originally produced. The axion window is therefore enlarged, reaching masses as light as $\sim 10^{-8}$ eV and decay constants as large as $f_a \sim 10^{14}$ GeV without fine tuning the misalignment angle.

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