

Abstract Submitted
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Resonant modes of a high Q microwave cavity in the detection of Axions¹ JUSTIN THIELE, University of Washington, ADMX COLLABORATION — The axion is a hypothetical particle that solves the strong CP problem and is a promising candidate for dark matter in the universe. The Axion Dark Matter eXperiment (ADMX) searches for axions by placing a high Q microwave cavity in a strong magnetic field. The magnet stimulates the conversion of axions into photons with a frequency that corresponds to the axion mass. Although the mass of the axion is unknown, the range in which axions contribute significantly to dark matter is well constrained and the resonant frequency of the cavity can be tuned to cover a range of masses. The resonant frequency is dependent on the size of the cavity as well as the position of tuning rods placed inside. By adjusting the position of these rods the detector can search over a range of frequencies corresponding to mass of the axion. Here I will give an overview of the application of resonant modes of the microwave cavity in the context of ADMX.

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