Abstract Submitted
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Design and Instrumentation for ADMX-G2 Run 1C[1] NICK DU, University of Washington, ADMX COLLABORATION — The axion is a well-motivated particle that solves the Strong CP problem and is also a dark matter candidate. The Axion Dark Matter eXperiment (ADMX) searches for axion matter within the local Milky Way halo using an axion haloscope. In previous runs, ADMX was able to exclude the full range of axion to photon couplings predicted by benchmark models for the axion between 2.66-3.31 μeV. These limits mark ADMX as the only axion haloscope experiment to achieve sensitivity to the compelling DFSZ model for the axion. ADMX is currently searching for axions at higher masses with comparable sensitivity. In this talk, I will focus on the design and instrumentation used to achieve this sensitivity, which include a dilution refrigerator to achieve milli-Kelvin temperatures and an ultra-low noise Josephson Parametric Amplifier (JPA). I will also discuss the instrumentation need to higher frequency searches using a multi-cavity haloscope.

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