

Abstract Submitted
for the APR16 Meeting of
The American Physical Society

The Axion Dark Matter eXperiment Cryogenic System¹ HANNAH LETOURNEAU, University of Washington, ADMX COLLABORATION — The Axion Dark Matter eXperiment (ADMX) searches for dark matter axions by looking for their resonant conversion to photons in a microwave cavity in a high magnetic field. The mass of the axion (unknown) determines the frequency at which the axion couples to the magnetic field, so the cavity is tuned through a wide range of frequencies while measuring the power deposited in it with ultra-sensitive quantum electronics. The dominant systematic noise is from the noise temperature of the electronics; during the last data run they were cooled to 1.5K with a pumped He-4 refrigerator. Currently, we are installing a large dilution refrigerator, which will cool the cavity and first stage amplifiers to ≈ 100 mK. I will discuss our progress, describe some of the challenges we have faced and how we have overcome them, and describe our plans for operation.

¹Supported by DOE Grants DE-FG02-97ER41029, DE-FG02-96ER40956, DE-AC52-07NA27344, DE-AC03-76SF00098, and the Livermore LDRD program.

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Date submitted: 08 Jan 2016

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