Abstract Submitted
for the APR21 Meeting of
The American Physical Society

Searching for Potential Signals in the Noise for ADMX G2-Run 1C[1] CHELSEA BARTRAM, University of Washington, ADMX COLLABORATION — The Axion Dark Matter eXperiment (ADMX) searches for axion dark matter candidates with a tunable haloscope consisting of a microwave cavity in an 8 T magnetic field. Having achieved sensitivity to DFSZ axions several years ago, ADMX continues to operate with its exquisitely sensitive receiver chain. Axion signals would manifest in the digitized power spectra as small narrowband excesses on the order of less than a yoctowatt. This implies the necessity of a strong signal-to-noise ratio, as well as a robust understanding of the system noise. We discuss the ADMX analysis process for the current data-taking operation (Run 1C), which spans a frequency range from about 760 to 1020 MHz (3.14 to 4.21 μeV). The characterization of the system noise is presented, in addition to new techniques to reject radio-frequency interference (RFI). The decision tree that is used to interrogate the nature of potential axion signals is presented.

[1]This work was supported by the U.S. Department of Energy through Grants No DE-SC0009800, No. DE-SC0009723, No. DE-SC0010296, No. DE-SC0010280, No. DE-SC0011665, No. DEFG02-97ER41029, No. DE-FG02-96ER40956, No. DEAC52-07NA27344, No. DE-C03-76SF00098 and No. DE-SC0017987. Fermilab is a U.S. Department of Energy, Office of Science, HEP User Facility. Fermilab is managed by Fermi Research Alliance, LLC (FRA), acting under Contract No. DE-AC02-07CH11359. Additional support was provided by the Heising-Simons Foundation and by the Lawrence Livermore National Laboratory and Pacific Northwest National Laboratory LDRD offices.

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Date submitted: 08 Jan 2021 Electronic form version 1.4