Abstract Submitted
for the APR21 Meeting of
The American Physical Society

ADMX High Resolution Analysis[1] A. T. HIPP, University of Florida, ADMX COLLABORATION — The goal of the Axion Dark Matter Experiment (ADMX) is to detect axions in the galactic halo via their conversion to microwave photons within a cavity. The experiment currently has two analysis channels, one with a frequency resolution of 200Hz referred to as medium res and another with a frequency resolution of 20mHz referred to as HiRes. In the most recent run, run 1c, the data sent to the HiRes channel was in the form of a complex time series. We present our methods and results for the analysis of this data. First, we will discuss the analysis of synthetic axions and pure noise. Next, how this analysis informed our decisions on what qualifies as a possible axion signal and the application thereof to the entire 1c data. Lastly, we will comment on the future work, particularly multi-resolution searches.

[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.

Alexander Hipp
University of Florida

Date submitted: 08 Jan 2021 Electronic form version 1.4