Abstract Submitted
for the APR21 Meeting of
The American Physical Society

Future Plans for the Axion Dark Matter Experiment (ADMX)[1]
GIANPAOLO CAROSI, Lawrence Livermore Natl Lab, ADMX COLLABORATION — Dark matter is likely to be made of new, as yet undiscovered particles and a very well motivated candidate is the axion, a light (μeV-meV) mass pseudoscalar neutral boson. Its possible detection can be made using a large scale cryogenic microwave cavity placed in a high magnetic field. The Axion Dark Matter eXperiment (ADMX), a DOE Generation 2 dark matter project, is currently the only operating experiment sensitive to primordial axions with DFSZ scale couplings. ADMX is currently operating in the 0.6-2 GHz range as part of the G2 program but has begun to lay the groundwork to extend the range to higher frequencies. Here I will give an overview of the ADMX 2-4+ GHz system which aims to use multiple co-added microwave cavities to increase the scan rate for higher mass axions. This system will likely use a new, higher field magnet system than the current ADMX system and represents a large increase in complexity with 10s of cavities being coherently combined digitally. We will go through the current plans and anticipated reach of the next generation system.

[1]Support from U.S. DOE 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. DOE, SC, HEP User Facility. Fermilab managed by Fermi Research Alliance, LLC (FRA), Contract No. DE-AC02-07CH11359. Additional support from Heising-Simons Foundation and the LLNL and PNNL LDRD offices.

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Date submitted: 12 Jan 2021 Electronic form version 1.4