

Abstract Submitted  
for the APR20 Meeting of  
The American Physical Society

**A search for unvirialized axions in ADMX**<sup>1</sup> SHRIRAM JOIS, University of Florida, ADMX COLLABORATION — The high resolution search for axions in the Axion Dark Matter eXperiment (ADMX) looks for unvirialized axions in a high Q microwave cavity inside the bore of a 8 T solenoid magnet. These unvirialized axions have a velocity dispersion of  $\frac{v}{c} = \mathcal{O}(\infty^{-1})$ . The axion signal undergoes a diurnal and annual modulation due to the Earth's motion in the galactic plane. Because the data have a frequency resolution of the order of 20 mHz whereas the frequency modulations are around 100 mHz per hour and up to 5 Hz per week, these effects must be considered during the data analysis. The analysis includes various cuts set to identify the triggers and exclude the non-persistent candidates, the identification and removal of the synthetic axion injections, and the investigation of diurnal and annual modulation of axion signal. In this talk, I will present the preliminary results of the run 1B of the ADMX run, which covers a frequency range of 680800 MHz (axion mass of 2.813.31  $\mu\text{eV}$ ).

<sup>1</sup>This work was supported by the U.S. Department of Energy through Grants Nos. DE-SC0009723, DE-SC0010296, DE-SC0010280, DE-SC0010280, DE-FG02-97ER41029, DE-FG02-96ER40956, DE-AC52-07NA27344, and DE-C03-76SF00098. This presentation has been authored by Fermi Research Alliance, LLC under Contract No. DE-AC02-07CH11359 with the U.S. Department of Energy, Office of Science, Office of High Energy Physics. Additional support was provided by the Heising-Simons Foundation and by the LDRD offices of the Lawrence Livermore and Pacific Northwest National Laboratories.

Shriram Sadashivajois  
University of Florida

Date submitted: 10 Jan 2020

Electronic form version 1.4