

Abstract Submitted
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Results from and Future Prospects for the Axion Dark Matter eXperiment S. ASZTALOS, XIA, LLC, R. BRADLEY, Natl. Radio Astronomical Observatory, G. CAROSI, Lawrence Livermore National Laboratory, M. HOTZ, Univ. of Washington, J. HWANG, Univ. of Florida, D. KINION, Lawrence Livermore National Laboratory, L. ROSENBERG, G. RYBKA, Univ. of Washington, P. SIKIVIE, D. TANNER, Univ. of Florida, K. VAN BIBBER, Lawrence Livermore National Laboratory, ADMX COLLABORATION — The Axion Dark Matter eXperiment (ADMX) at LLNL searches for dark-matter axions through their Primakoff conversion to microwave photons, resonantly enhanced in a high-Q cavity permeated by a strong magnetic field. ADMX remains the world's quietest spectral receiver in the GHz regime, capable of detecting a single RF photon per minute above cavity blackbody and amplifier noise. ADMX has previously covered a frequency range of 460 to 812 MHz (1.9 – 3.4 micro-eV); over that octave of mass range axions were excluded as the Milky Way halo dark matter for well-motivated models of the coupling of the axion to two photons. An upgrade of ADMX has since been completed, which replaced the previous HFET amplifiers with SQUID amplifiers. This talk will describe the upgrade, including SQUID amplifier technology, recent results, and discuss plans for a second-phase upgrade to further reduce the systems noise temperature to ~ 100 mK.

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