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Initial Results from a SQUID-Based High Resolution Axion Search[1] J. HOSKINS, S. J. ASZTALOS, R. BRADLEY, G. CAROSI, D. GOFFREDO, C. HAGMANN, M. HOTZ, J. HWANG, D. KINION, L. ROSENBERG, G. RYBKA, P. SIKIVIE, D.B. TANNER, K. VAN BIBBER, ADMX Collaboration — The Axion Dark Matter eXperiment (ADMX) searches for halo axions via their resonant conversion to microwave photons in a high-Q cavity permeated by a strong magnetic field. Whereas fully thermalized axions would appear in the medium resolution spectrum as a line broadened to one part in a million in frequency (and thus energy), populations of axions characterized by low velocity dispersion could be detected by ADMX in its high resolution channel as sharp lines several orders of magnitude more narrow yet. In this talk, we present a preliminary high-resolution analysis with a frequency resolution of 10 Hz in the 800 MHz range (3.3 microelectronvolt), recently covered with the new SQUID amplifiers. A more sophisticated higher resolution examination will be forthcoming which will need to address the daily and annual modulations to the axion signal due the motion of the Earth.

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