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First Results from the ADMX-G2 Axion Search

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We report on results from the first run of the ADMX-G2 experiment, a haloscope search for dark matter axions. The search excludes the range of axion-photon couplings predicted by the DFSZ model for masses between 2.66 and 2.81 μeV . This unprecedented sensitivity is achieved by operating a large-volume haloscope at sub-kelvin temperatures, thereby reducing thermal noise as well as the excess noise from the ultra-low-noise SQUID amplifier used for the signal power readout. Future runs will extend sensitivity over a wide range of axion masses.

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