

Abstract Submitted
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ADMX High-Frequency Microwave Cavity Development¹ I. STERN, Univ of Florida - Gainesville, ADMX COLLABORATION, ADMX-HF COLLABORATION — The Axion Dark Matter eXperiment (ADMX), a direct-detection axion search, has just begun taking data with a redesigned system. Earlier phases conducted axion searches in the mass range of $1.9 - 3.5 \mu\text{eV}$ (460 – 850 MHz) setting upper limits below the theoretical KSVZ coupling strength of the axion to two photons. The current upgrades will allow ADMX to detect axions with even the most pessimistic couplings in this frequency range and in to the GHz regime. In order to expand its mass reach, ADMX is developing next-generation microwave cavities that will enable the search for axions with masses up to $12 \mu\text{eV}$ (3 GHz) at the more weakly interacting DFSZ coupling value. Testing and analysis has been performed on photonic band-gaps, regulating multi-vanes, segmented resonators, and slow wave cavities. Results of recent testing and future development plans will be presented.

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