Abstract Submitted
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The ADMX Microwave Cavity: Present and future[1] NATHAN WOOLLETT, Lawrence Livermore Natl Lab, ADMX COLLABORATION — The Axion Dark Matter eXperiment (ADMX), a direct-detection axion search, uses a tunable resonant cavity to enhance axion to photon conversion rates to a detectable level when the cavity resonance matches the mass of the axion. It has successfully taken data in the 460 – 890 MHz frequency range and is now probing a similar range with much higher sensitivity. However the axion mass is unknown and may be at higher frequencies than the currently operating system. In anticipation of future runs with an increased mass range, ADMX is conducting extensive research and development of microwave cavities. These developments include photonic band-gap cavities, multi-vane cavities, partitioned cavities, in-phase coupled cavities, and superconducting hybrid cavities. Many of these projects are in different stages between simulations and testing of physical prototypes. The status and current objectives of these projects will be presented.

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