

Abstract Submitted
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Microwave Cavity Searches for Axions¹ D.B. TANNER, L.D. DUFFY, P. SIKIVIE, University of Florida, S.J. ASZTALOS, G. CAROSI, D. CARTER, C. HAGMANN, D. KINION, L.J. ROSENBERG, K. VAN BIBBER, LLNL, D.B. YU, MIT, R.F. BRADLEY, NRAO — The axion is a hypothetical elementary particle proposed as a solution to the “strong CP” problem. The mass of the axion is constrained by experimental and astrophysical considerations to a range where the axion is a very plausible cold dark matter candidate. This weakly interacting dark matter makes up the halo of our galaxy. In the ADMX experiment, halo axions flow through a microwave resonant cavity permeated by a static magnetic field where some convert into microwave photons. These photons are detected by an ultra-low-noise receiver. The ADMX Collaboration has set limits on the axion-to-photon coupling and /or local axion halo mass density for axion mass between 1.9 and 3.3 μeV .

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