Abstract Submitted
for the APR14 Meeting of
The American Physical Society

Mississippi State Axion Search JOHN MADSEN, Mississippi State Univ, MISSISSIPPI STATE AXION SEARCH (MASS) COLLABORATION[1] — The Mississippi State Axion Search (MASS) is an attempt to improve the limit on the mass coupling parameter of the Axion. The design features a sealed cavity partitioned by a lead wall into which RF power is transmitted. Another antenna on the far end of the cavity serves as the detector. The signal acquired by this antenna is fed through an integrator and a series of pre-amps and lock-ins before reaching the data acquisition system. The data acquisition system, written in the LabView front end DASYLab, operates at 1kHz in synchronicity with a TTL pulse that resets the integrator. The value recorded by the DAQ is, therefore, the maximum voltage of integration in the millisecond period. The Axion signal would appear in the data as a voltage excess. Several measures have been implemented with more being developed to ensure the validity of detections. Large excesses are cut by an electronics system, and smaller anomalies will be excised in the data analysis. Results will also compared to a complete Monte Carlo simulation currently in development.

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Date submitted: 08 Jan 2014 Electronic form version 1.4