

Abstract Submitted  
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**Detecting Solar Relic Axions with ADMX<sup>1</sup>** HECTOR CARRANZA JR, Presenter, GRAY RYBKA , LESLIE ROSENBERG, author, AXION DARK MATTER EXPERIMENT (ADMX) TEAM — Axions are hypothetical particles theorized to be a main component of dark matter seen in many astrophysical measurements. The Axion Dark Matter Experiment (ADMX), at the University of Washington (UW), is searching for dark matter axions through axion conversion into microwave photons inside of a Radio Frequency (RF) cavity. It is theorized that axions produced by photon conversion in the sun remain gravitationally bound in the solar system and build up over time. Though there are other experiments that are searching for solar produced axions such as the CERN Axion Telescope (CAST), we were not able to use their methodologies being that they are looking at relativistic axions and the ADMX experiment is specifically looking at non-relativistic axions. We estimate the energy density of solar produced, gravitationally bound axions and axion-like particles at Earth with two simple models. One is an optimistic model where the energy loss of the sun from axion-like particles is as large as allowed by current solar observations, and the other is a Quantum Chromo Dynamics (QCD) axion inspired model. This presentation will describe our calculations and findings of non-relativistic axions at Earth.

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