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Novel Method for the Detection of Axions by Daily and Annual Modulations

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Axions which were originally proposed as a solution to the Strong CP problem have gained interest as a potential Dark Matter candidate. Axion Quark Nuggets (AQNs) are a new model for Dark Matter consisting of quark or anti-quark matter contained within an axion domain wall. AQNs can produce axions when they encounter time dependent perturbations (such as passing through the interior of the Earth) which enable their potential detection. In this talk, we will review the basics of the AQN model and give a review of contemporary Axion cavity search focusing on the CAST-CAPP experiment. Next we will show how the CAST-CAPP experiment and search procedure can be modified to search for AQNs by looking for daily and annual modulations in the CAST data. We will present preliminary results for this new search procedure and provide comments on future directions for AQN searches.

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Please select: Experiment or Theory

Experiment

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