

The ALPHA axion dark matter experiment

Monday, 8 July 2024 14:34 (17 minutes)

Among the possible dark matter candidates, axions are one of the most promising. Yet, the parameter space allowed by theory is considerably unexplored. Cutting-edge calculations favor post-inflation axion mass of tens of μeV . This corresponds to roughly 10-100 GHz in frequency, too high for conventional haloscopes to reach. The Axion Longitudinal Plasma Haloscope (ALPHA) located at Yale University is a new concept of detector. It makes use of materials arranged in a clever fashion (metamaterials) to engineer a custom plasma and probe the 10-45 GHz frequency range. This talk will describe the general design of the experiment, the current status of the R&D, and the expected sensitivity.

Primary author: GALLO ROSSO, Andrea

Presenter: GALLO ROSSO, Andrea

Session Classification: Parallel 3

Track Classification: Parallel session: Axion/Sterile