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BRASS-p Search for Exotic WISPy Phenomenon

Monday, 3 July 2023 15:00 (20 minutes)

The Broadband Radiometric Axion Search (BRASS-p) prototype is a state-of-the-art radio telescope with exceptional sensitivity for searching WISPy dark matter within the 12-18 GHz mass range. Its analog receiver provides dual polarization sensitivity at low system temperature, and the digital backend of BRASS-p delivers high resolution ($\frac{\delta\nu}{\nu} = 10^{-8}$) over the broadband intermediate frequency of 4 GHz. As such, BRASS-p is well-suited to detect exotic WISPy dark matter phenomena beyond the thermalized halo of the axion/ALPS or unpolarized hidden photon. In this presentation, we will provide a quick update on the current status and sensitivity of BRASS-p in detecting standard halo model WISPs, and addressing the spectral standing wave issue in dish antenna experiment. Finally, we will discuss its ability to resolve the sidereal modulated signal from polarised hidden photons and search for electromagnetic transients from axion mini-clusters or streams.

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