17th International Conference on Topics in Astroparticle and Underground Physics (TAUP 2021)

Report of Abstracts

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First observation and analysis of DANCE: Dark matter Axion search with riNg Cavity Experiment

Content

Dark matter Axion search with riNg Cavity Experiment (DANCE) was proposed. To search for axion-like dark matter, we aim to detect the rotation and oscillation of optical linear polarization caused by axion-photon coupling with a bow-tie ring cavity. DANCE can improve the sensitivity to the axion-photon coupling constant for axion mass $< 10^{-10}$ eV by several orders of magnitude compared to the best upper limits at present. A prototype experiment DANCE Act-1 with a shorter cavity round-trip length of 1 m is ongoing to demonstrate the feasibility of our method and to investigate possible technical noises. We assembled the optics, evaluated the performance of the cavity. The first 12-day observation was successfully performed in May 2021, and the data analysis is underway. In this conference, we will report the principle of DANCE and the status of DANCE Act-1.

Reference to paper (DOI or arXiv)

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Your gender

Woman

Your gender (free text)

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