

16th Patras Workshop on Axions, WIMPs and WISPs



Report of Abstracts

Abstract ID : 78

First test operation 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 underway to demonstrate the feasibility of our method and to investigate possible technical noises. We assembled the optics, evaluated the performance of the cavity, and estimated the current sensitivity. We are now trying to obtain and analyze the data. In this workshop, we will present the principle of DANCE and the status of DANCE Act-1.

Speaker

Yuka Oshima

Primary author: OSHIMA, Yuka (University of Tokyo)

Co-authors: WATANABE, Taihei (University of Tokyo); FUJIMOTO, Hiroki (University of Tokyo); MICHIMURA, Yuta (University of Tokyo); NAGANO, Koji (ISAS/JAXA); OBATA, Ippei (MPA); FUJITA, Tomohiro (ICRR); ANDO, Masaki (University of Tokyo)

Presenter: OSHIMA, Yuka (University of Tokyo)

Submitted by **OSHIMA, Yuka** on **Friday 30 April 2021**