

Signal Processing Methods for CAPP's Axion Data

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The IBS center for axion and precision physics research (CAPP) conducts haloscope axion search whose method uses a cavity resonator capable of scanning a range of frequencies using a special tuning system. The relic axions passing through the detector are converted into microwave photons inside the resonator via Primakoff effect. The converted photons are coupled to an RF transmission line from the cavity. The RF signal is transferred through the receiver chain and recorded as an averaged spectrum in a predetermined processing frequency band. This study focuses on the processing aspects of the data obtained from the pilot axion experiments at CAPP (CAPP-PACE) covering the 2.45 - 2.75 GHz frequency range. In this poster, the employed methods of data processing for maximum SNR output are considered.

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