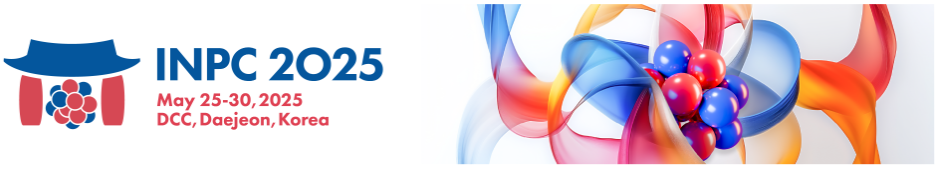

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Precise measurement of ^{3}H beta decay spectrum and keV-scale sterile neutrino search

Thursday, 29 May 2025 16:45 (15 minutes)

We report analysis results on a LiF Experiment for keV Sterile Neutrino Search (LiFE-SNS) based on tritium beta decay measurement at mK temperatures. We use LiF crystals with ^{3}H embedded through the Li(n,α)^{3}H process. Magnetic microcalorimeters, one of the high-resolution detector technologies, are adopted to measure the amount of the energy deposited into the crystal absorber from ^{3}H beta decays.
A full spectral measurement was conducted using two detector modules, each activated with ^{3}H at approximately 30 Bq, over a four-month data taking period. In this conference, we present analysis results, including a comparison of the measured spectrum with the expected ^{3}H spectral shape and the results of the search for keV-scale sterile neutrinos.

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