

## A lab-scale experiment for keV sterile neutrino search from tritium beta decay spectrum

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We developed a simple small-scale detection method for beta decay spectrum of  ${}^3\text{H}$ . This research is motivated to investigate the presence of sterile neutrinos in keV region. In our experiment, tritium nuclei are embedded in a  $1\times 1\times 1\text{ cm}^3$  LiF crystal from  ${}^6\text{Li}(n,{}^3\text{H}){}^4\text{He}$  reaction. The beta energy spectrum is measured with an MMC sensor, one of the high-resolution microcalorimeters operating at mK temperatures. We present the method for the sample preparation and the experiment together with the physics result from the first measurement set. Moreover, an expected sensitivity to search for the heavy neutrino is discussed for one year measurement with the setup.

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