

LiFE-SNS: LiF Experiment for keV sterile neutrino search

Tuesday, 18 June 2024 17:30 (2 hours)

We report recent progress 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 ^3H embedded through the $\text{Li}(n,\alpha)^3\text{H}$ 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 ^3H beta decays. Two detector modules have been prepared for the first phase of the project to achieve the highest sensitivity near the 10-keV region with a four-month measurement period. In this poster, we present the short- and long-term goals of the LiFE-SNS project searching for keV-scale sterile neutrinos together with possible systematics.

Poster prize

No

Given name

Yong-Hamb

Surname

Kim

First affiliation

Institute for Basic Science (IBS)

Second affiliation

Institutional email

yhk@ibs.re.kr

Gender

Male

Collaboration (if any)

LiFE-SNS

Primary authors: KIM, Yong-Hamb; LEE, Y.C. (Institute for Basic Science)

Co-authors: CHUNG, J.S. (Institute for Basic Science); KIM, H.B. (Institute for Basic Science); KIM, H.J. (Institute for Basic Science); KIM, H.L. (Institute for Basic Science); KIM, M.B. (Institute for Basic Science); KIM, S.C. (Institute for Basic Science); KIM, S.K. (Seoul National University); KIM, W.T. (Institute for Basic Science); KWON, D.H. (University of Science and Technology); LEE, D.Y. (Institute for Basic Science); LEE, K.B. (Korea Research

Institute of Standards and Science); LIM, H.S. (Institute for Basic Science); PARK, H.S. (Korea Research Institute of Standards and Science); PARK, H.K. (Korea University); WOO, K.R. (Institute for Basic Science); YANG, J.Y. (Institute for Basic Science); YOON, Y.S. (Korea Research Institute of Standards and Science)

Presenter: KIM, Yong-Hamb

Session Classification: Poster session and reception 1

Track Classification: Sterile neutrinos