

A study of neutrinoless double electron capture of ^{40}Ca with the AMoRE-I experiment

Tuesday 26 August 2025 14:00 (20 minutes)

The AMoRE collaboration aims to investigate rare processes, including neutrinoless double electron capture ($0\nu 2\text{EC}$), an intriguing alternative to neutrinoless double-beta decay for exploring the fundamental nature of neutrinos. We will present a comprehensive analysis of the $0\nu 2\text{EC}$ process in ^{40}Ca , utilizing the high-purity, enriched calcium molybdate ($^{48\text{dep}}\text{Ca}^{100}\text{MoO}_4$) detectors from the AMoRE-I experiment.

Taking advantage of the low-background environment and high energy resolution of the AMoRE-I setup, we thoroughly searched for the $0\nu 2\text{EC}$ signature at the decay's Q-value (193.5 keV). In this presentation, we report preliminary studies on the half-life of $0\nu 2\text{EC}$ in ^{40}Ca and highlight the sensitivity of low-temperature calorimeters in probing rare decay processes.

Collaboration you are representing

AMoRE

Authors: SHARMA, Bijaya (IBS School, UST); KIM, Yeongduk (Institute for Basic Science); Dr OH, Yoomin (Institute for Basic Science)

Presenter: SHARMA, Bijaya (IBS School, UST)

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