

Coherent Elastic Neutrino-Nucleus Scattering in Germanium detectors

Content

We perform a phenomenological study of neutrino interactions using data from the measurement of coherent elastic neutrino-nucleus scattering (CE ν NS) by the COHERENT experiment with a germanium detector. We use data sets from two independent experimental measurements, with the second run reaching a threshold of 0.5 keV $_{ee}$ and almost tripling the statistics with respect to the first one. We use both datasets to extract Standard Model parameters as the weak mixing angle, and we explore models involving non-standard neutrino interactions (NSI), and light mediators. By comparing the initial measurement constraints with those from the updated data, we evaluate how the recent improvements in exposure and detector threshold impact the overall experimental sensitivity.

Summary

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