

NuESS, a new opportunity for CEvNS at the ESS

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The recent detection of the coherent elastic neutrino-nucleus scattering (CEvNS) opens the possibility to detect neutrinos with small-size detectors and with different techniques, opening a new window to explore possible BSM physics.

The CEvNS process generates signals at the few-keV level, requiring sensitive detection technologies for its observation. The European Spallation Source (ESS) has been identified as the best possible site for the exploration this CEvNS process.

Within the NuESS program, two different detector approaches are currently under development at Donostia International Physics Center (DIPC). The GanESS project, a high-pressure gaseous time projection chamber (TPC) and the CoSI project, which employs cryogenic undoped CsI crystals.

These next-generation technologies will be capable of observing the process with lower energy threshold and better energy resolution than current detectors. In addition, the combination of these detectors will allow for a complete phenomenological exploitation of the CEvNS signal. In particular, these measurements will not be statistically limited due to the synergy between larger neutrino fluxes at the ESS and these improved detectors.

I will give an overview of the current status of NuESS with a focus on its short-term plans.

Poster prize

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