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CEvNS at the European Spallation Source

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The recent detection of coherent elastic neutrino-nucleus scattering (CEvNS) creates the possibility to use neutrinos to explore physics beyond standard model, with small-size detectors. However, the CEvNS process generates signals at the few keV level, requiring very sensitive detector technologies. The European Spallation Source (ESS) has been identified as an optimal source of low energy neutrinos, offering an opportunity for a definitive exploration of all phenomenological applications of CEvNS.

A number of different detector approaches are currently under development for deployment at ESS. These next-generation technologies will be able to observe the process with lower energy threshold and better energy resolution than current detectors. The combination of their observations will allow for a complete phenomenological exploitation of the CEvNS signal. In particular, these measurements will not be statistically-limited, a result of the large neutrino flux expected at the ESS.

In this talk I will present the main projects currently being developed to detect the CEvNS at the ESS, with a strong focus on two of them: the GanESS project which will use high pressure gas TPC filled with different noble gases; and the CoSI project, which employs cryogenic undoped CsI crystals.

Submitted on behalf of a Collaboration?

Yes

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