

Detecting CEvNS on germanium

Coherent elastic neutrino nucleus scattering (CEvNS) is the interaction of the neutrino with the nucleus as a whole. A coherent interaction is achieved for neutrinos with energies less than 50 MeV as can be found at the spallation neutron source (SNS) at the Oak Ridge National Laboratory (ORNL) and at nuclear reactors. CEvNS is detected by registering the tiny recoil of the nucleus that the neutrino interacted with, which puts high demands on the noise threshold of the detector. In my talk, I will illustrate how high-purity germanium spectrometers (HPGe) with their low noise threshold are highly suitable for a precision detection of CEvNS to probe the standard model of particle physics. I will talk about the first detection of CEvNS on germanium at the SNS with the Ge-Mini detector setup and the first detection of CEvNS at reactor site with CONUS+ at the Leibstadt reactor. Finally, I will give a brief outlook on the future potential in particular with regards on the noise threshold.

Presenters: HAKENMUELLER, Janina Dorin (Duke University); TBD

Session Classification: Thursday Morning Session 1