

The Neutrino Elastic-scattering Observation experiment with NaI[Tl] crystal (NEON)

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Standard-Model predicted coherent elastic neutrino-nucleus scattering is interesting for measuring neutrino properties but is not yet detected for reactor neutrinos. For this measurement, we will use an array of NaI[Tl] crystals which show advantages for high light yields as a low threshold detector. The Hanbit reactor site in Korea provides 2.8 GW of thermal power and neutrino flux at detector 24m distant from reactor core is measured to be $7.02 \times 10^{12}/cm^2/s$. The current R&D shows that a light yield of a crystal is more than 20 PE/keV which would make a sub-keV scintillation signal accessible. Our experiment will include a total of 8 kg target mass with a liquid scintillator veto for various backgrounds, and lead, cooper, and polyethylene for further environmental background shielding.

Working Group

WG2 : Neutrino Scattering Physics

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