

Quenching Factor Measurements for Germanium Detectors at TUNL

Authorship annotation

for the COHERENT collaboration

Session and Location

Wednesday Session, Poster Wall #22 (Robert-Schumann-Room)

Abstract content

The Coherent Elastic Neutrino-Nucleus Scattering has been observed by the COHERENT collaboration using a 14.6-kg CsI[Na] scintillator at Oak Ridge National Laboratory. This indicates a new way to build compact neutrino detectors and unlocks new channels to test the Standard Model. The main challenge is to understand the neutrino-induced low energy nuclear recoils. It is commonly known that the signals from nuclear recoils can be quenched in many types of detectors, resulting in less light or ionization. This phenomenon is referred to as the “quenching factor”. Ge can be a promising neutrino detector because of its low energy threshold and excellent energy resolution. In order to calibrate the Ge detector, a neutron beam is usually used to generate nuclear recoil signals. A new beam line has been built at Triangle University Nuclear Laboratory (TUNL) in order to provide systematic and precise quenching factor measurements.

Poster included in proceedings:

yes

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