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Low-energy Yttrium-Beryllium calibration in XENONnT

Thursday 28 August 2025 18:00 (20 minutes)

Characterizing low-energy, keV-range nuclear recoils near the detector threshold is a crucial recipe for the recent highlights from the XENONnT experiment —for accurately measuring the solar Boron-8 neutrino via coherent elastic neutrino-nucleus scattering (CEvNS) and searching for light dark matter particles. In this talk, we will present the first calibration campaign using an Yttrium-Beryllium photoneutron source in the XENONnT experiment. From the nuclear recoil events induced by this 152 keV neutrons source, we extracted the light (charge) yield for liquid xenon at our field strength of 23 V/cm between 0.56 (0.62) keV and 5.0 keV. This talk will cover aspects such as source design, simulation and data analysis.

Collaboration you are representing

XENON

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Session Classification: Dark Matter and Its Detection

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