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Energy response characterisation of the SoLid detector

Calibration and simulation of the SoLid detector energy response are crucial to correct detector inhomogeneities and perform a neutrino oscillation measurement. The detector is composed of 12,800 (5x5x5 cm³) cubes made of PVT scintillator and read out by a network of 3,200 wavelength shifting fibres and MPPCs. Two methods have been developed to extract light yield from Compton edge spectrum in each cube which are in a 2% agreement. From this, 19,200 parameters are derived to describe the detector response in the simulation. The agreement between data and simulation is controlled using calibration runs and BiPo-214 decay energy spectrum in physics runs for which we obtain a 10% agreement.

Mini-abstract

Calibration and simulation of the energy response of the highly segmented detector SoLid

Experiment/Collaboration

SoLid collaboration

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