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Dual Calorimetry at JUNO

The Dual Calorimetry at JUNO consists of two readout systems surrounding the 20 kton liquid scintillator. One is the ~18,000 20-inch PMTs (LPMTs) system, the other is the ~26,000 3-inch PMTs (SPMTs) system. The LPMT system pursues maximal light detection. However, due to the large charge detection variation of the LPMT, the control of non-linearity effects in charge measurement becomes a main challenge for JUNO. The SPMT system is introduced as a second calorimetry to 1) isolate the charge non-linearity effects for LPMT, 2) provide by design a linear reference for LPMT. The Dual Calorimetry could lead to the calibration of LPMT charge non-linearity, thus helping the systematics control and physics measurement for JUNO. In this poster the physics motivation and basic concept of Dual Calorimetry will be introduced. The novel Dual Calorimetry calibration methodology and its possible performance will be presented.

Mini-abstract

Novel Dual Calorimetry method at JUNO for charge (PMT&electronics) nonlinearity calibration

Experiment/Collaboration

JUNO collaboration

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