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Poster Session

Submission of Abstract

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Title of the Poster: Double Calorimetry System of JUNO experiment

Abstract Text: JUNO is a Liquid Scintillator antineutrino detector currently under construction in China. It consists of a 20 kt target mass made of LAB scintillator, monitored by ~ 18000 20" high-QE photomultipliers (PMTs) providing a $\sim 80\%$ photo-coverage. Large photo-coverage and high QE are two key requirements to yield ~ 1200 PE/MeV needed to achieve a $\sim 3\%$ total energy resolution at 1 MeV. This is the goal in the quest to determine the neutrino mass ordering. To reduce the systematic uncertainties of the energy resolution, JUNO has conceived a novel detector design comprising a layer of 3" PMTs. This will provide a complementary calorimetry which, in combination with the 20" PMTs, should allow a more accurate energy scale definition ("double-calorimetry"). We review the motivations for double-calorimetry in JUNO, including the trailblazing capabilities of this approach, as well as the technical challenges associated to its realisation.

Summary: JUNO, neutrino mass ordering, PMT, calorimetry, energy scale, energy resolution, photo-electrons