

E61 Photosensor and Electronics Design

E61 is a proposed water Cherenkov near detector in the J-PARC neutrino beam. We will describe the design of the E61 detector; in particular, we will focus on the photosensors and electronics for E61. Key challenges for the design include maintaining good reconstruction performance for a relatively small inner volume and handling large rate of pile-up events from the high-intensity J-PARC neutrino beam. Our design is based on the ‘mPMT’ module; using sets of twenty four 3” PMTs assembled in acrylic and metal cylinders, mounted on a support frame. Over the past year we have made substantial progress on the design and construction of an mPMT prototype for E61, including: detailed characterization of the candidate 3” PMTs; tests of various optical gels; prototyping of the 3-D printed support structure for holding the PMTs; design of the low-power waveform digitizing electronics. We will also show updated estimates of the reconstruction performance for the E61 mPMT design.

Authorship annotation

for the E61 collaboration

Session and Location

Monday Session, Poster Wall #97 (Auditorium Gallery Left)

Poster included in proceedings:

yes

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Track Classification: Poster (participating in poster prize competition)