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## The JUNO large PMT readout electronics

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The Jiangmen Underground Neutrino Observatory is the state of the art, liquid scintillator based, large neutrino detector. Due to the 20 kt liquid scintillator mass, and thanks to the tight requirements on its optical and radio-purity properties, it will be able to perform leading measurements detecting terrestrial and astrophysical neutrinos in a wide energy range (from 200-keV to several MeV). An important requirement for the success of the experiment is an unprecedented energy resolution (3% at 1 MeV) and a sub-percent energy non-linearity. Another key ingredient is the use of high speed, high resolution sampling electronics, located very close to the 20,012 20-inch photomultipliers. This novel concept, compared to legacy large scintillator based neutrino experiments, allows to reach the best performances in terms of signal to noise ratio since the analog part of the signal is digitized at a very early stage. Moreover, the data readout throughput is lowered thanks to the reduced number of cables needed to communicate to the back-end electronics. Finally, local data storage is possible opening the possibility to perform complex signal pre-processing tasks locally, before data is sent to the Data Acquisition system. In this contribution, the design of the Front-End and Read-Out electronics will be presented, together with the performances measured on prototype modules and during the mass production of the final electronics.

### Collaboration

JUNO

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**Classifica Sessioni:** Front End, Trigger, DAQ and Data Mangement - Poster session