

## The 3-inch PMT system in JUNO experiment

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Jiangmen Underground Neutrino Observatory (JUNO) is the next generation of neutrino experiment in China to determine the neutrino mass ordering, which is under construction in Guangdong Province. The 25600 3-inch PMTs will be installed in the gaps between 17612 closely packed 20-inch PMTs to reach an excellent energy resolution [ $3\%/\sqrt{E(\text{MeV})}$ ] and an accurate energy scale determination [better than 1%]. The 3-inch PMT system not only can detect the IBD signals independently but also can measure the solar parameters  $\theta_{12}$  and  $\Delta m_{212}^2$  independently. Besides, it also has the potential to improve measurements of supernova neutrinos and proton decay.

All 3-inch PMTs have been produced by the Hainan Zhanchuang Photonics Technology Co., Ltd (HZC) and were all instrumented with water proofing also in HZC. The acceptance tests almost finished in Guangxi University. Components of readout electronics were partially produced and are expected to finish in the next few months. The electronics assembling and integration testing are underway on JUNO surface ground site. The 3-inch PMTs and underwater boxes will begin to be installed on the JUNO detector after several months.

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