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JUNO central detector and PMT system (12' + 3')

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The Jiangmen Underground Neutrino Observatory (JUNO) is a multi-purpose underground experiment and the largest liquid scintillator (LS) detector going for neutrino mass hierarchy, precise neutrino oscillation parameter measurement and studies of other rare processes which include but not limited to solar neutrino, geo-neutrino, supernova neutrinos and the diffuse supernova neutrinos background.

The 20kt LS central detector of JUNO is the key of the whole facility. Parallel efforts and R&D activities addressing different aspects of the central detector are being actively pursued at different collaboration institutions. We present here details on the detector design and progresses. A JUNO central detector prototype with ~55% photon-cathode coverage is under running and data analysis. Goals of the prototype include testing different large area PMTs, testing different electronics designs and detector/data analysis etc. Preliminary results including PMTs about the prototype will be presented here.

In another hand, how to build/install the largest LS detector also is a big challenge for the φ35.4m acrylic sphere with a stainless steel truss and the ~17000 20"PMT + ~35000 3"PMT. This talk also will show the PMT system design, the preliminary consideration of the installation including CD, PMT etc.

Primary authors: Dr XIE, Yuguang (IHEP, Beijing, China); WANG, Zhimin (Institute of High Energy Physics (Beijing))

Presenter: WANG, Zhimin (Institute of High Energy Physics (Beijing))

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