



Contribution ID: 640

Type: Oral Presentation

Design, status and plans of JUNO & RENO-50 as a comprehensive neutrino program (15' + 5')

Thursday, 4 August 2016 12:50 (20 minutes)

The Status of JUNO and RENO-50

Both the Jiangmen Underground Neutrino Observatory (JUNO) in China and the RENO-50 in South Korea are multipurpose neutrino experiments designed to determine neutrino mass hierarchy and precisely measure oscillation parameters by detecting reactor neutrinos from nuclear power plants, observe supernova neutrinos, study the atmospheric, solar neutrinos and geo-neutrinos, and perform exotic searches. The two experiments both plan to use the liquid scintillator detector with large scale to have huge target mass and with the critical performance of the precise energy resolution.

All the design and research progresses of JUNO will be introduced in this talk including detector structure design, high detection efficiency PMT, transparent liquid scintillator, electronics readout, calibration, veto system, etc. The main design of structure of central detector in JUNO is determined and it uses the acrylic sphere with the diameter of 35.4 m to contain the 20 ktons of liquid scintillator. The acrylic sphere is supported by stainless steel latticed shell and the shell also holds about 17000 pieces of 20 inch PMTs and 34000 pieces of 3 inch PMTs with high detection efficiency to detect the light from the liquid scintillator. The liquid scintillator is very transparent with the attenuation length of over 20 meters. The central detector is surrounded by pure water as veto Cherenkov detector and its top is covered by tracker detector composed of plastic scintillator with wavelength shift fiber. There are several calibration methods to be used for the central detector.

Also the RENO-50 R&D status will be introduced.

Primary author: Prof. HENG, Yuekun (Institute of High Energy Physics, Beijing)

Presenter: Prof. HENG, Yuekun (Institute of High Energy Physics, Beijing)

Session Classification: Neutrino Physics

Track Classification: Neutrino Physics