Contribution ID: **9**   Type: **not specified**

JUNO detector simulation based on customized Geant4 physics list

Friday 26 April 2024 11:30 (20 minutes)

Jiangmen Underground Neutrino Observatory (JUNO) is designed to determine the neutrino mass ordering and precisely measure neutrino oscillation parameters. The JUNO central detector is the largest liquid scintillator detector which contains 20 kton liquid scintillator, surrounded by more than 17000 20-inch photon multiplier tubes (PMTs) and 25600 3-inch PMTs. The JUNO detector simulation has been developed based on Geant4 with customized Geant4 physics list, the costomized processes include G4Cerenkov, G4Scintillation,G4OpBoundaryProcess, G4EmLivermorePhysics, G4RadioactiveDecayPhysics, and G4HadronPhysicsQGSP_BERT_HP. Some of them have already been included in latest Geant4 releases, but some are not.

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Session Classification: Workshop