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Atmospheric neutrino event selection and classification for oscillation analysis at JUNO

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The Jiangmen Underground Neutrino Observatory (JUNO) is a multipurpose neutrino experiment that aims to determine the neutrino mass ordering (NMO) and to precisely measure the oscillation parameters using reactor neutrinos. Atmospheric neutrinos can also contribute to the NMO sensitivity with a complementary approach: using the matter effects on neutrino oscillations. This poster will present the recent Monte Carlo studies of atmospheric neutrino event selection and classification at JUNO, which will enhance the oscillation sensitivity by using novel data analysis techniques. Specifically, the PMT charge and time information from both the Central Detector and the Water Pool Veto detector will be used to suppress cosmic muon backgrounds and identify the different flavors. The multiplicity of spallation neutrons and Michel electrons associated with the primary atmospheric neutrino interactions is expected to help separate neutrinos from antineutrinos.

Submitted on behalf of a Collaboration?

Yes

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