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Machine Learning methods for JUNO Experiment

Jiangmen Underground Neutrino Observatory (JUNO) experiment is a multipurpose neutrino experiment, aiming to determine the unknown neutrino mass ordering and precisely measure the neutrino oscillation parameters. JUNO consists of a central detector with 20 kt liquid-scintillator target and muon veto detectors. 18,000 20-inch PMTs will be installed in central detector, in order to achieve 3% energy resolution at 1 MeV. Challenging physics goals as well as the large amount of collected data require advanced analysis techniques, in which the machine learning algorithms have been successfully used in some collider experiments and neutrino experiments. In JUNO, we have implemented several kinds of machine learning algorithms for particle identification and event reconstruction, and some work has been done to find out the optimal method for JUNO. In this talk, some preliminary results will be reported.

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