

# Flavor identification of atmospheric neutrinos in JUNO

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The Jiangmen Underground Neutrino Observatory (JUNO) is a next-generation large liquid-scintillator neutrino detector, which is designed to determine the neutrino mass ordering. Moreover, high-energy atmospheric neutrino measurements could also improve its sensitivity to mass ordering via matter effects on oscillations, which depend on the capability to identify the flavors of neutrinos. However, this task has never been attempted in large homogeneous liquid scintillator detectors like JUNO.

This poster presents a machine learning approach for the flavor identification of atmospheric neutrinos in JUNO. In this method, several features relevant to event topology are extracted from PMT waveforms and used as inputs to machine learning models. Moreover, the features from captured neutrons provide additional capability of neutrinos versus anti-neutrinos identification. Preliminary results based on Monte Carlo simulations show promising potential for this approach.

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