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Cosmic Muon Track Reconstruction in JUNO

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The Jiangmen Underground Neutrino Observatory (JUNO) is a 20-kton liquid scintillator detector designed for the determination of neutrino mass ordering and precise neutrino oscillation parameter measurements. Accurate reconstruction of cosmic muon tracks is essential for suppressing cosmogenic backgrounds and improving the neutrino signal efficiency.

In this poster, we present a comprehensive overview of the muon reconstruction algorithms developed for JUNO. Preliminary reconstruction performance and muon angular spectrum measurements are reported. This work demonstrates that JUNO can achieve precise cosmic muon track reconstruction, enabling more efficient cosmogenic background suppression while preserving detector live time.

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