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Neural Network-Based Waveform Reconstruction in JUNO

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Jiangmen Underground Neutrino Observatory (JUNO) is a multi purpose 20 kton liquid scintillator detector located in southern China. A primary physics goal of JUNO is to determine the neutrino mass ordering using reactor antineutrinos. Achieving this goal critically depends on the detector's excellent energy resolution, which is directly influenced by the accuracy of waveform reconstruction from the 17,612 20 inch PMTs. This poster introduces a neural network-based, data driven waveform reconstruction method using calibration data. This approach helps reduce the charge smearing effect and further improve the energy resolution.

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