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Sub-GeV events energy reconstruction with 3-inch PMTs in JUNO

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A 20-kiloton liquid scintillator detector is designed in the Jiangmen Underground Neutrino Observatory (JUNO) for multiple physics purposes, including the determination of the neutrino mass ordering through reactor neutrinos, as well as measuring supernova neutrinos, solar neutrinos, and atmosphere neutrinos to explore different physics topics. Efficient reconstruction algorithms are needed to achieve these physics goals in a wide energy range from MeV to GeV. In this poster, we present a novel method for reconstructing the energy of sub-GeV events using hit information from 25600 3-inch photomultiplier tubes (PMTs) and the OCCUPANCY method. Our algorithm exhibits good performance in accurate energy reconstruction, validated with electron Monte Carlo samples spanning kinetic energies from 10 MeV to 1 GeV.

Alternate track

I read the instructions above

Yes

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