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Probing Supernova neutrinos with the 20-inch PMT system in JUNO

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The Jiangmen Underground Neutrino Observatory (JUNO) is a multi-purpose neutrino experiment currently being constructed in China. JUNO uses a 20-kiloton liquid scintillator detector equipped with 17612 20-inch PMTs and 25600 3-inch PMTs. Its main physics goal is to determine the neutrino mass ordering and achieve precision measurements of oscillation parameters. Besides that, JUNO is capable of recording a large amount of data from neutrinos produced by the next galactic Core-Collapse Supernova (CCSN) burst, which can be used for both astrophysics and particle physics studies. In particular, JUNO will be sensitive to all neutrino flavours from a CCSN flux by different interaction channels. This poster outlines the selection strategies to identify the relevant neutrino interaction channels with the 20-inch PMTs, and presents a method for reconstructing the energy spectra of all types of neutrinos from CCSN events.

Poster prize

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