

JUNO's sensitivity to supernova neutrino initial spectra extraction under the framework Earth matter effects.

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JUNO will be an underground detector, filled with 40 ktn of liquid scintillation and boasting excellent resolution. It will enable simultaneous studies of great importance in the fields of neutrino and supernova physics. An intriguing area of research is the potential observability of Earth matter effects on the energy spectrum of neutrinos originating from core-collapse supernovae (CCSN) within our galaxy. This is especially relevant for supernovae occurring at distances less than 1 kpc. The observation of such effects would offer an alternative mechanism for determining the neutrino mass ordering. The presentation will delve into the most crucial aspects of extracting the initial energy spectrum in the presence of flavor conversions (Mikheyev-Smirnov-Wolfenstein effect) in both the star's mantle and terrestrial matter.

Author: GARZÓN MUÑOZ, Isaac Mateo

Co-author: Dr DELGADO, Edwin A.

Presenter: GARZÓN MUÑOZ, Isaac Mateo