

Exploring Atmospheric Neutrino Oscillation in JUNO

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The Jiangmen Underground Neutrino observatory (JUNO) will be a versatile 20 kton liquid scintillator detector with a large spectrum of physics objectives. It is currently under construction in China, with its filling set to start in 2024. The primary goal of JUNO is to determine the neutrino mass ordering by detecting the vacuum oscillation pattern of reactor antineutrinos over a baseline of 52.5 km. Thanks to its gigantic size and the 78% light coverage afforded by its dual calorimetric systems –including 17,612 20” and 25,600 3” photomultiplier tubes –JUNO will be able to capture atmospheric neutrinos at an expected rate of approximately 10 events per day. The MSW effect on the oscillation of atmospheric neutrinos induced while they traverse the Earth’s matter can be explored to enhance the neutrino mass ordering measurement in JUNO, provided the energy, direction, and flavor of multi-GeV neutrinos can be reconstructed. This poster presentation showcases the analysis strategy and the status of some of its key ingredients.

Poster prize

No

Given name

Amina

Surname

Khatun

First affiliation

Comenius University in Bratislava, Slovakia

Second affiliation

Institutional email

amina.khatun@fmph.uniba.sk

Gender

Female

Collaboration (if any)

JUNO

Primary authors: KHATUN, Amina (Comenius University in Bratislava); Ms RIFAI, Mariam (Institut für Kernphysik, Forschungszentrum Jülich, 52425 Jülich, Germany and Physikalisches Institut B, RWTH Aachen University, 52062 Aachen, Germany)

Presenters: KHATUN, Amina (Comenius University in Bratislava); Ms RIFAI, Mariam (Institut für Kernphysik, Forschungszentrum Jülich, 52425 Jülich, Germany and Physikalisches Institut B, RWTH Aachen University, 52062 Aachen, Germany)

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