Contribution ID: **884** Type: **Poster**

Reconstruction of atmospheric neutrino events at JUNO

Friday, 8 July 2022 20:10 (20 minutes)

The Jiangmen Underground Neutrino Observatory (JUNO) is a 20 kt liquid scintillation detector, which will be completed in 2023 as the largest of its kind. JUNO aims to determine the neutrino mass ordering by observing the energy dependent oscillation probabilities of reactor
anti-neutrinos.
JUNOs large volume provides the opportunity to detect atmospheric neutrino events with lower energies than today's large Cherenkov experiments. As atmospheric neutrinos reach the detector from all directions, partially experiencing the matter effect, they are especially interesting for observing the neutrino mass ordering, by measuring their oscillation probabilities.
This poster presents direction and energy reconstruction methods for atmospheric neutrino events at JUNO. The former uses a traditional approach, based on the reconstruction of the photon emission topology in the JUNO detector. For the energy reconstruction a traditional approach as well as a machine learning based, using Graph Convolutional Networks (GCNs), are shown.

In-person participation

Yes

Primary author: WIRTH, Rosmarie (Institute of Experimental Physics, University of Hamburg, Hamburg, Germany)

Co-authors: COLOMER MOLLA, Marta (Inter-university Institute for High Energies, Université libre de Bruxelles (ULB)); RIFAI, Mariam (Forschungszentrum Jülich GmbH, Nuclear Physics Institute IKP-2, Jülich, Germany; III. Physikalisches Institut B, RWTH Aachen University, Aachen, Germany)

Presenter: WIRTH, Rosmarie (Institute of Experimental Physics, University of Hamburg, Hamburg, Germany)

Session Classification: Poster Session

Track Classification: Neutrino Physics