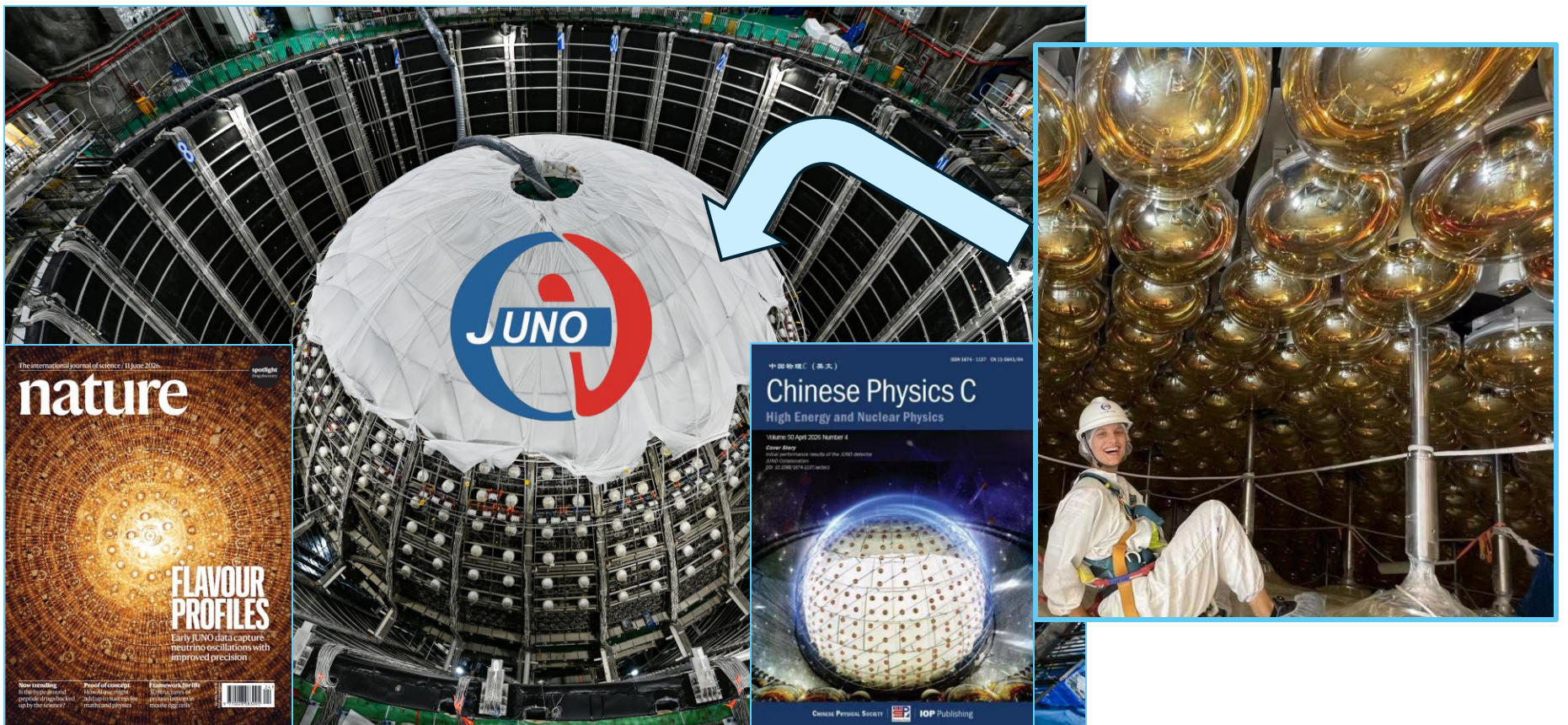


Open Theses in Prof. Caren Hagner's Neutrino Group with **JUNO**

Experiment Overview:

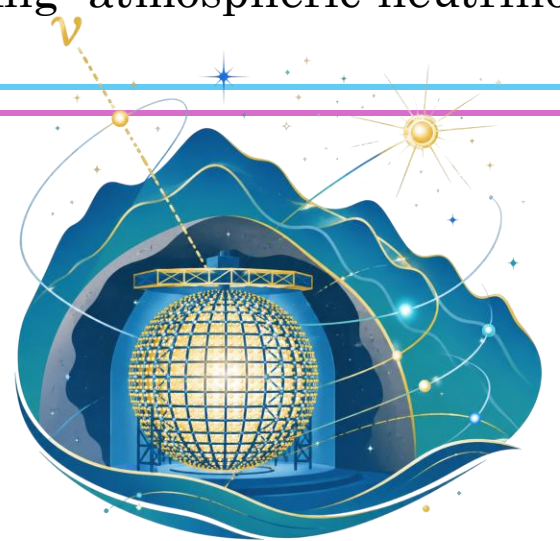
The **Jiangmen Underground Neutrino Observatory (JUNO)** is a 20-kiloton liquid scintillator detector, has successfully started data taking since August 2025. Its primary scientific goal is to determine the neutrino mass ordering with a statistical significance greater than 3σ within approximately six years of data collection. This will be achieved by observing the oscillation spectrum of reactor antineutrinos at a baseline of ~ 53 km. Now JUNO is positioned to play a leading role in precision measurements of neutrino oscillation parameters. One of JUNO's key features is its outstanding energy resolution of 3 % at 1 MeV, realized by more than 43,000 PMTs in a double calorimetry system.



Our research group currently focuses on applying **Topological Track Reconstruction (TTR)** to the first real JUNO data and on reconstructing atmospheric-neutrino events using machine-learning methods.

Topics:

- Machine Learning in Neutrino Physics
- Software Development for JUNO Data
- Cosmic Rays and Dark Matter Sensitivity Studies
- Atmospheric Neutrinos/Muons Reconstruction



For the most up-to-date topics please contact:

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