

Robustness of neutrino mass ordering determination

Thursday, May 26, 2022 5:22 PM (23 minutes)

In neutrino oscillation physics numerous exact degeneracies exist under the name LMA-Dark.

These degeneracies make it impossible to determine the sign of Δm_{31}^2 known as the atmospheric mass ordering with oscillation experiments alone in the presence of new neutrino interactions.

We discuss the status of these degeneracies and show that recent data has lifted the LMA-Dark degeneracy in the ν_e sector, however it can still be restored in the ν_μ and ν_τ sector or with very specific couplings to up and down quarks, and we speculate on a path forward.

Author: GEHRLEIN, Julia

Co-author: DENTON, Peter (Brookhaven National Laboratory)

Presenter: GEHRLEIN, Julia

Session Classification: Neutrino