

## Physics of $\nu$ osc. with atmospheric $\nu$ detectors

*Thursday, June 20, 2024 2:00 PM (30 minutes)*

The interaction of cosmic rays with the atmosphere generates a neutrino flux spanning from 10 MeV to over 10 TeV, traveling through baselines from  $\sim 10$  km to  $\sim 1000$  km. This creates an ideal environment for testing neutrino evolution. Atmospheric neutrinos have been crucial in discovering neutrino oscillations and continue to advance our understanding. In this talk, we assess the sensitivity of current and upcoming atmospheric neutrino experiments within the standard three-flavor oscillation framework. We analyze shared systematic uncertainties and explore the potential of a joint analysis to resolve major uncertainties in the three-neutrino mixing scenario. Our results indicate that the octant of  $\theta_{23}$  can be resolved at the 99% confidence level, and the neutrino mass ordering determined with over  $5\sigma$  significance. We also find that certain values of the CP-violating phase can be excluded with more than  $3\sigma$  significance.

### Poster prize

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