

Phenomenology 2025 Symposium



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Probing Quantumness at Long Baseline Neutrino Experiments

Tuesday 20 May 2025 15:45 (15 minutes)

The Leggett-Garg Inequality (LGI) offers a way to test for the violations of classicality in a system by studying how its measurements are correlated over time. Long-baseline neutrino oscillation experiments provide some of the longest distances over which the quantum behavior of any system can be tested. In my talk, I will present comprehensive results on LGI in connection to 3 existing experiments (MINOS, NOvA, T2K) and I will also discuss projections for DUNE. I will also present the results for the recently proposed quantum mismatch measure and compare against the corresponding results from the Leggett-Garg measure. Our results highlight the importance of a careful, systematic approach to testing quantum behavior in both current and future long-baseline experiments.

Mini Symposia (Invited Talks Only)

Plenary (Invited talks only)

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