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Phenomenologically Viable Froggatt-Nielsen Solutions to the Lepton Flavor Puzzle

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The fermion mass hierarchy of the Standard Model (SM) spans many orders of magnitude and begs for a further explanation. The Froggatt-Nielsen (FN) mechanism is a popular solution which introduces an additional $U(1)$ symmetry to the SM under which SM fermions are charged. We studied the general class of FN solutions to the lepton flavor puzzle, including multiple different scenarios of neutrino masses. In this talk, we present preliminary results for the phenomenologically viable set of leptonic FN solutions. We calculate the magnitude of resulting flavor-changing observables for both low-energy decays and collider signatures, especially the observational potential of a future muon collider. We also discuss the potential for distinguishing between different FN scenarios based on the patterns observed in flavor-violating observables.

Mini Symposia (Invited Talks Only)

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