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Ghost Condensation Neutrino Physics

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Ghost condensation is a consistent infrared modification of gravity. As an avenue of exploration, we couple the ghost condensate to neutrinos. The result is an unambiguous model of neutrino interactions in a Lorentz violating background. This scenario features the goldstone boson of time-diffeomorphism breaking – thereby yielding novel neutrino interactions. Consequently, specific bounds are placed on the parameter space using experimental data from existing neutrino oscillation experiments, SN1987a and the cosmic microwave background. In addition, we consider gauged ghost condensation and briefly comment varying experimental signatures.