

Superluminal neutrino cascades and ultra-high-energy neutrino events

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The recent detection of a neutrino event with an energy of approximately 100 PeV by KM3NeT has opened the window of ultra-high-energy (UHE) neutrino astronomy. This newly accessible regime offers an unprecedented opportunity to explore new physics. In particular, a population of UHE neutrinos has implications for scenarios of Lorentz Invariance Violation (LIV), where neutrinos with a modified dispersion relation may decay during propagation, altering the expected flux of cosmic neutrinos. In this talk, we will address some limitations of previous studies of LIV constraints on superluminal neutrinos based on the KM3-230213A event, and present a unified framework that could be applied to constrain LIV models predicting superluminality in the detection of future UHE neutrino events.

Working Group

WG2 - High Energy QG Experiment

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