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KL -> pi0 nu nu(bar) Beyond the Grossman-Nir Bound

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We do not violate the Grossman-Nir (GN) bound per se, but point out that the commonly perceived current GN bound of B(KL \rightarrow pi0 nu nu(bar)) < 1.4 x 10⁻⁹ can be evaded, if a weakly interacting narrow state falls into the windows of kinematic exclusion of the K+ \rightarrow pi+ nu nu(bar) experiments. An explicit example is a Z' boson motivated by the muon g-2 anomaly and linked with flavor physics. The model has implications for K+ \rightarrow pi+ mu+ mu-, B \rightarrow K+ mu+ mu-, K(*) nu nu(bar) studies, the LBNE and Muon g-2 experiments, and possibly even LHC collider physics. But the main point is that the KOTO experiment is already breaking New Physics ground in their search for KL \rightarrow pi0 nu nu(bar).

additional information

Talk based on arXiv:1412.4397 [hep-ph], which just appeared in Phys. Rev. Lett.

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