

# Constraints on Generalized Neutrino Interactions in the keV Region of the Tritium $\beta$ -Decay Spectrum

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The effective Lagrangian for tritium  $\beta$  decay in the Standard Model can be extended by introducing additional Lorentz-invariant coupling terms analogous to those of the electroweak interaction. This framework, known as Generalized Neutrino Interactions (GNIs), incorporates interactions involving light and heavy neutrinos as well as right- and left-handed neutrino currents coupled to quarks and leptons. We measure the tritium  $\beta$ -decay spectrum using a LiF crystal coupled to a cryogenic metallic magnetic calorimeter (MMC) over a four-month data-taking period. This presentation reports the analysis results constraining the GNI coupling constants based on a 10-day subset of the full four-month data set.

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