

LSC 5.5 — Zenodo Documentation

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Abstract

LSC 5.5 is an effective phenomenological model combining curved spacetime neutrino propagation with detector-level energy reconstruction effects. The model aims to explain Gallium anomalies without invoking sterile neutrinos, instead relying on geometric and tensor-based corrections.

Core Idea

Observed anomalies may arise from the interplay of propagation effects and detector reconstruction bias.

Experimental Compatibility

- Compatible with KATRIN (no large distortion of beta spectrum when interpreted correctly) - Compatible with IceCube observations (anisotropy and energy dependence) - Explains Gallium anomaly magnitude via $\Delta E/E$ correction

Status

This is a testable hypothesis. The model has passed initial consistency checks but requires further validation and parameter constraints.