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NUMERICAL ANALYSIS OF LOW SCALE SEESAW MODELS AND LEPTON FLAVOR VIOLATION PROCESSES

Content

Neutrino oscillation experiments have demonstrated that neutrinos are massive particles, motivating extensions of the Standard Model capable of generating their masses. Among these extensions, low-scale seesaw models provide an attractive framework by introducing new sterile neutrino states at energy scales potentially accessible to current experiments.

In this work, we study the parameter space of the inverse seesaw model, focusing on its compatibility with neutrino oscillation data and constraints from charged lepton flavor violating processes, particularly the decay $\mu \to e\gamma$. The analysis is performed through numerical diagonalization of the neutrino mass matrix and the exploration of a high-dimensional parameter space. To improve the efficiency of this search, bio-inspired optimization algorithms are employed to identify phenomenologically viable regions consistent with current experimental observations.

Summary

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