

# Are the neutrinos driving the SM to the Swampland?

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It is known that not every effective field theory could be embedded in quantum gravity, but only those which are consistent with the QG conjectures. Does these constraints have an impact in low energy physics? Recently, Ooguri and Vafa argued using a strong approach of the Weak Gravity Conjecture that non-supersymmetric stable AdS vacua are incompatible with quantum gravity. It is also known that compactifying the Standard Model to 3 or 2 dimensions can give rise to AdS vacua. Using the fact that those vacua must be absent, several constraints are set on the SM and BSM particles, obtaining a lower bound on the cosmological constant in terms of the masses of the neutrinos. Moving forward one can translate those into an upper bound for the EW scale around the TeV range.

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