

Constraints on SM from AdS conjectures

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We discuss how the AdS distance conjecture applied to the dimensional reduction of the SM in a circle leads to constraints on the mass of the lightest neutrino and to ruling out pure Majorana masses. We also consider an extension of the SM including a quintessence field and show how the generalization of the dS conjecture to AdS vacua leads to similar results. Both constraints can also shed light on the hierarchy problem. Finally, a light fermion swampland conjecture is presented, extending the rationale behind the quantum gravity requirement of light fermions to more general EFTs in D dimensions.

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