

Fundamental physics in the cosmos: The early, the large and the dark Universe



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Constraints on the Standard Model from the Weak Gravity Conjecture

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It is known that there are AdS vacua obtained from compactifying the Standard Model to 2 or 3 dimensions. However, using the Weak Gravity Conjecture, it has been recently argued by Ooguri and Vafa that non supersymmetric stable AdS vacua are incompatible with quantum gravity. By requiring the absence of these vacua we can put constraints on the SM spectra, obtaining a lower bound for the cosmological constant in terms of the neutrino masses. This can also be translated into an upper bound for the EW scale around the TeV range, bringing a new perspective into the issue of the EW hierarchy.

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