Institut Henri Poincaré

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String Theory in Greater Paris

Rencontres Théoriciennes

"Supergravité, théorie des cordes et théorie M"

Jeudi 2 Juin 2022, 11:00

Alessandro Tomasiello

On the Stability of String Theory Vacua

Vacuum compactifications may suffer from instabilities under small perturbations or bubble nucleation. While supersymmetric vacua are protected from both, it is an open question whether any non-supersymmetric AdS vacuum can be stable. We will attack this problem using positive-energy theorems. We will first see how to apply such theorems to supersymmetric vacua in M-theory and type II supergravity, rather than to their effective lower-dimensional reductions. We will then present some strategies to modify the arguments in the non-supersymmetric case. In M-theory, at the lower-derivative level, such modifications fail to stabilize the skew-whiffed and Englert vacua.

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