

Toward realistic de Sitter heterotic-string models with stable moduli

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The Standard Model of particle physics accounts for all experimental observations to date, and may provide viable parameterisation up to the Planck scale. In this eventuality, further insight into the fundamental origin of the Standard Model parameters can only be gleaned by synthesising it with gravity. String theory provides a framework for the construction of phenomenological models that are consistent with perturbative quantum gravity. Since the late eighties quasi-realistic supersymmetric string models were constructed that reproduce the structure of the Minimal Supersymmetric Standard Models and provide the arena for calculating the parameters of the Standard Model from a theory of quantum gravity. In recent years these studies were extended to non-supersymmetric string vacua including tachyon free vacua that descends from tachyonic ten dimensional vacua. I will give an overview of this work, including work in progress toward the construction of quasi-realistic de Sitter vacua with stable moduli.

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