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Type: **Parallel talk**

Inflation and dS vacua in type IIA strings on rigid Calabi–Yau manifold

Tuesday, 20 June 2017 15:00 (15 minutes)

My talk is devoted to superstring cosmology and moduli stabilization, and is based on arXiv:1607.05293 (published in JHEP), and 1703.08993 (submitted to PTEP). We search for dS vacua and slow roll inflation in a class of flux compactifications of type IIA strings on rigid Calabi-Yau manifolds with local $N=2$ supersymmetry in four spacetime dimensions. These theories represent a nice theoretical laboratory for explicit calculation of quantum gravity corrections to the superstring low-energy effective action. We derive a non-perturbative potential of the scalar fields from the exact D-instanton corrected metric on the hypermultiplet moduli space. This potential stabilizes all axions. Next, we study the remaining scalars, i.e. dilaton and Kaehler moduli. We find that the perturbative scalar potential does not have local minima for any number of Kaehler moduli. And, in the one-modulus case, the instanton corrections do not help. Finally, we study the inflationary properties in the one modulus case, in the absence of instanton contributions. We find that the scalar potential can satisfy the positivity and slow-roll conditions, but also causes decompactification. We conclude that it is not phenomenologically viable in the given class of rigid Calabi-Yau flux compactifications of type IIA strings, unless $N=2$ local supersymmetry is broken.

Presentation type

Parallel talk

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