Obstructions to asymptotic regions in F-theory

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Abstract

In this talk, I will discuss quantum obstruction to asymptotic regions in the scalar field space of F-theory compactifications to four dimensions. In particular, I will focus on asymptotic regimes in the complex strucutre moduli space of the underlying elliptic Calabi-Yau fourfold and show that these are obstructed if the volume of the base of the fourfold is kept constant. To do this, I will use different dualities that enable the computation of quantum corrections to the effective action that from the Type IIB orientifold perspective are genuine N=1 effects. In this way, I will demonstrate that the classical effective action cannot be trusted in large complex structure regime if all Kahler parameters are kept constant. Finally, I will comment of the implications of these findings for string model building and string phenomenology.

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