Heterotic Calabi-Yau Compactifications with Flux

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Overview

Motivation: Why Calabi-Yau with Flux?

Standard Setup: Calabi-Yau

Usually, heterotic compactifications are of the form

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We will take $\mathcal{M}_6$ to be a Calabi-Yau. Supersymmetry requires $\mathcal{M}_6$ half-flat.

Four-Dimensional Phenomenology

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- Calabi-Yau: Everywhere in moduli space [Lukas, Klaput, Svanes 1305.0594].

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- Maximally symmetric: Stabilises dilaton.
- Domain wall: Lift to maximally symmetric (stable?) vacuum. Shown for the case of half-flat domain walls in [Klaput, Lukas, Matti, Svanes 1210.5933].

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Future directions:

- Study moduli stabilisation and lifting of an explicit model.
- Try other compactifications: cosmic string, black hole, ...

Thank you!

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