Heterotic Calabi-Yau Compactifications with Flux

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Motivation

CY Domain Walls

Phenomenology

Conclusions and Outlook

Motivation: Why Calabi-Yau with Flux?

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- Powerful tools of Algebraic Geometry and Kähler Geometry available.

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

Supersymmetric Calabi-Yau Domain Walls

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Dilaton is always a runaway direction. Complex structure moduli approach constants. Consistent with complex structure dependent 4d superpotential.

Four-Dimensional Phenomenology

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- Calabi-Yau: Everywhere in moduli space [Klaput et al., 1305.0594].

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If possible to lift: May use flux in heterotic to stabilize moduli.

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- What about chiral matter and the bundle moduli?
- Try other compactifications: cosmic string, black hole, ...

Thank you!

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