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de Sitter vacua at leading order?

Wednesday 5 June 2024 10:20 (30 minutes)

In this talk I will present the first explicit example of a de Sitter vacuum as envisioned by Kachru, Kallosh, Linde and Trivedi 20 years ago, in the tree level approximation in both the string loop and α' expansion. I will begin by summarizing the construction of all the relevant components, from Calabi-Yau orientifolds, and a mechanism to generate exponentially small superpotentials from quantized fluxes, to the explicit stabilization of hundreds of Kähler moduli via non-perturbative D3-instantons on cycles that satisfy Witten's rigidity conditions, and the construction of warped Randall-Sundrum throats that can host SUSY breaking uplifts. However, some corrections in the α' and g_s expansions are potentially important but are not fully known, and I will comment on robustness against these.

This talk is based on upcoming work with Liam McAllister, Richard Nally, and Andreas Schachner.

Presenter: MORITZ, Jakob Ulrich (CERN)