Department of Theoretical Physics

# THE QUANTUM SPACETIME SEMINAR SERIES

## Candidate de Sitter Vacua

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(Cornell University)

**Date:** September 23, 2024

**Time:** 9 AM IST

**Venue:** A304

Zoom link shall be shared separately

I will present Calabi-Yau orientifold flux compactifications of type IIB string theory that yield, at leading order in the string loop and sigma model expansions, de Sitter vacua of the form envisioned by Kachru, Kallosh, Linde, and Trivedi. Each example includes a Klebanov-Strassler throat region containing a single anti-D3-brane, whose supersymmetry-breaking energy, computed at leading order, causes an uplift to a metastable de Sitter vacuum in which all moduli are stabilized. In this talk I will begin with a general overview of the problem of finding vacua in string theory, explain the physical mechanism at work in our solutions, and comment on the prospects for finding de Sitter solutions that demonstrably survive subleading corrections.