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Machine Learning string theory effective field theories

Friday 10 October 2025 16:00 (5 minutes)

One of the most compelling questions of string phenomenology is how to find viable inflationary models stemming from string theory. While asymptotic regions of the moduli space have been extensively explored - with limited success - little is known about inflationary dynamics in transitional, or 'penumbral', regions. In this talk, I will focus on the complex structure moduli space of Type IIB string theory compactified over Calabi-Yau three-folds. I will present evidence for flattened scalar potential valleys, which could deliver inflationary trajectories in penumbral regions of the moduli space, and I will illustrate how to obtain families of effective theories hosting such valleys by using machine learning techniques.

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