

Gravitational Axiverse Spectroscopy

Thursday 27 June 2024 15:00 (15 minutes)

Among various predictions of string compactifications, axions hold a pivotal role, as they provide a unique avenue to tie UV physics to experiments.

Most experimental setups aim to detect a signal using the direct coupling between the axion and the Standard Model. However, string axions do not necessarily need to couple to the Standard Model directly. In this talk I will describe how inflationary models with multiple “spectator” axions coupled dark gauge sectors via Chern-Simons coupling could source observable gravitational waves.

If string axions coupled to Abelian gauge fields undergo slow-roll during inflation, they produce a multi-peak GW signal whose magnitude depends on the details of the compactification. I will discuss how to embed spectator axions into type IIB orientifold compactifications and the restrictions imposed on such models from consistency and control requirements, thereby motivating models that may live in the landscape as opposed to the swampland.

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Session Classification: Parallel session