

## **Bootstrapping Inflationary New Physics**

*Wednesday, 20 May 2026 11:10 (40)*

Our understanding of the primordial Universe largely depends on the information from spatial correlations of cosmic-scale matter distributions. Recently, the advances of the “cosmological bootstrap” program offers new perspectives and powerful tools to study these cosmological correlators. In this talk, I will review the exciting developments along this direction, with a focus on the phenomenology and observation frontiers. I will first systematically classify the primary observational target — primordial non-Gaussianities (bispectrum) from cosmic inflation, incorporating three leading scenarios: single field inflation, cosmological colliders and multi-field inflation. Then, I will introduce the recent efforts to bootstrap graviton non-Gaussianities from massive spinning fields. In the end, I will present an up-to-date data analysis of the new predictions using the latest CMB data from Planck satellite. Via both CMB-BEST and Modal pipelines, we identify the most significant signal of cosmological collider in the current observation.

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**Session Classification** : Day 1