

Improved Constraints on Local Primordial Non-Gaussianity from Spectroscopic Data with Galaxy Bias

Tuesday, 7 May 2024 14:00 (10 minutes)

Local Primordial non-Gaussianity (LPNG) - the most easily measurable signature of inflationary physics from large-scale structures - will be a primary science target for current and future spectroscopic surveys. Maximally extracting information about the amplitude of PNG (f_{NL}) will require knowledge of galaxy formation physics, which can robustly be embedded in the values of bias parameters in large-scale perturbative models. I will describe several theoretical developments related to PNG bias, including: field-level measurements of PNG bias in simulations, the origin of PNG assembly bias in Lagrangian bias models, and the relationship between PNG bias and (relativistic) evolution bias in simulations. Another challenge for constraining LPNG is large-scale systematics - I will also discuss potential strategies for mitigating such effects. These insights have the potential to be especially relevant for improving the amount of cosmological information extracted from future spectroscopic high-redshift surveys that will access very large scales relevant for constraining the physics of inflation.

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