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Measuring Non-Gaussianity in Galaxy Surveys: A New Window on the Universe

Tuesday, 20 June 2017 14:45 (15 minutes)

Most information about cosmological parameters and the inflationary universe comes from the CMB, however with the advent of galaxy surveys such as the DES and Euclid further constraints can be obtained from LSS. The gravitational collapse of matter is a complex non-linear process, and is typically modelled numerically with N-body codes. Since N-body codes are expensive to run many have proposed fast dark matter codes which are benchmarked by their ability to reproduce the matter power spectrum. The accuracy of these codes can be further tested by looking at higher-order statistics, and in my talk I will present a fast methodology (MODAL-LSS) to calculate the full bispectrum. As a test case we compared a number of fast dark matter and halo-finder codes with GADGET-2 over a wide redshift range. This will serve as an important diagnostic tool for dark matter/halo mock catalogs. We will also apply it to galaxy survey data to break parameter degeneracies and search for primordial non-Gaussianity.

Presentation type

Parallel talk

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