

## **Primordial non-Gaussianity from the angular clustering: prospects for DES**

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Primordial non-Gaussianity (PNG) is claimed to be a smoking gun to differentiate between the vast collection of inflationary models. The current constraints on PNG, parametrized by  $f_{NL}$ , are obtained from the CMB, which has reached the cosmic variance limit. A promising way to look for PNG is using the Large Scale Structures (LSS) of the universe, with the potential of breaking the  $\sigma(f_{NL}) \sim 1$  barrier.

In this talk, I will present an analysis of the methods for looking at Primordial non-Gaussianity in the Large Scale Structure of the Universe, with the main focus on the Dark Energy Survey (DES).

We use the Angular Correlation Function (ACF) and show how it is modified by Primordial Non-Gaussianity via a scale-dependent bias (Dalal et al. 2008). One of the main focus of the work is on the integral constraint (IC) condition, which is found to be key to obtain unbiased PNG constraints. The IC corrects for the fact that the mean density of the Universe is measured from the observed galaxies.

The methods are analyzed and optimized for two kinds of simulations: COLA mocks that follow the DES angular and redshift distribution and N-Body simulations with non-Gaussian initial conditions. With the aforementioned simulations, we focus on optimizing the methods to constraint  $f_{NL}$  to obtain precise and unbiased results, preparing the ground for the DES Y3 data. We highlight the potential that DES and future photometric surveys could have in constraining PNG.

### **Reference to paper (DOI or arXiv)**

### **Your gender (free text)**

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