Contribution ID: **97** Type: **not specified**

Search for primordial features in the CMB power spectrum and bispectrum

Numerous physically well-motivated early universe models predict mild oscillations in the primordial spectra. We present our recent research on finding hints of primordial features in the CMB. First, we use and develop a free-form reconstruction technique on the CMB power spectrum to obtain a form of primordial power spectrum which fits both the temperature and polarisation data well. The method is further improved by introducing regularisation methods inspired by image analysis. Second, we present our newly developed public code CMB-BEST (CMB Bispectrum ESTimator) for constraining primordial non-Gaussianity. The independent code can constrain a wide range of models including highly oscillatory bispectrum templates predicted by models with features. Our findings are discussed in the context of the look-elsewhere effect. Some future prospects for upcoming CMB surveys are provided.

Secondary category for the parallel session (optional)

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Session Classification: Parallel: Cosmology 1