



Contribution ID: 12

Type: **not specified**

Squeezing 21cm intensity: the multi-modal bispectrum

Tuesday 14 May 2024 10:00 (20 minutes)

21cm intensity surveys in interferometer mode can directly measure the small-scale post-reionisation temperature fluctuations in Fourier space. In single-dish mode, these surveys can measure the modes on larger scales.

We show that this complementarity provides a new way to measure the squeezed bispectrum. The interferometer/ single-dish combination can deliver a high signal-to-noise measurement of the squeezed bispectrum, which in turn can be used to constrain local primordial non-Gaussianity. We find that surveys similar to those planned for HIRAX (interferometer) and SKAO (single-dish) can deliver constraints that are competitive with Planck and outperform a Euclid-like survey.

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