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# Bispectrum and finite volume effects: window convolution

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One particular class of observables to study galaxy clustering are Fourier-space summary statistics of the galaxy distribution. The higher order statistics such as the galaxy bispectrum offers non-trivial information with respect to the power spectrum, and in particular can directly probe a primordial non-Gaussian component, possibly shedding light on the interactions taking place during inflation. Including analysis of higher-order statistics however, comes with extra modelling complexity. In this talk, I will focus on the challenge to properly model the effects of the survey window in the bispectrum. Finite volume effects like this is especially important in order to get an unbiased measurements of parameters sensitive to large-scale information, e.g. fNL. In fact, the conventional FKP (Feldman-Kaiser-Peacock)-like estimator used to measure bispectrum provides as output a non trivial convolution between the underlying bispectrum with the window function. This effect should then be included in the theoretical prediction resulting in a 6-dimensional integral that needs to be evaluated in fast way so that it can be implemented in a likelihood analysis. First, I will illustrate our effort to provide a full analysis pipeline for the combined power spectrum and bispectrum measurements [arXiv: 2204.13628]. Then, I will present an exact and efficient method to perform the bispectrum-window convolution via Hankel transform [arXiv: 2203.04174] and conclude with possible applications and future directions.

**Orateur:** PARDEDE, Kevin