



Basundhara Ghosh
University of Geneva

Non-linear contributions to angular power spectra

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Future galaxy clustering surveys will probe small scales where non-linearities become important. Since the number of modes accessible on intermediate to small scales is very high, having a precise model at these scales is important especially in the context of discriminating alternative cosmological models from the standard one. In the mildly nonlinear regime, such models typically differ from each other, and galaxy clustering data will become very precise on these scales in the near future. As the observable quantity is the angular power spectrum in redshift space, it is important to study the effects of non-linear density and redshift space distortion (RSD) in the angular power spectrum. I will talk about non-linear contributions to the angular power spectrum that we compute using a flat-sky approximation, and compare the results of different perturbative approaches with N-body simulations.