

Abstract:

If dark energy and dark matter interact via exchange of energy and momentum, then this may affect the galaxy power spectrum on large scales. When this happens, it may be degenerate with the signal from primordial non-Gaussianity via a scale-dependent bias. We consider a class of interacting dark energy models and show that the matter overdensity is scale dependent on large scales. We estimate the effective non-Gaussianity arising from the large-scale effects of interaction in the dark sector. The signal of dark sector interaction can be disentangled from a primordial non-Gaussian signal by measuring the power at two redshifts. On small scales, N-body simulations of standard cosmological models are used to investigate the signature of primordial non-Gaussianity on halo mass function. It has a significant effect on very large halos however it is negligible for small mass halos. Interacting Dark Energy is assumed to have a similar effect on small scales.