Contribution ID: **431** Type: **Talk**

Precision measurement of the local bias of dark matter halos

Saturday 5 December 2015 17:55 (20 minutes)

The large-scale local bias parameters of dark matter halos are essential to describe the statistics of halos and galaxies on large scales, as well as for the halo model of the matter distribution. We recently obtained precise measurements of the three leading bias parameters from simulations using a novel technique : the separate universe simulations. For b_2 and b_3, these are the most precise measurements to date. We compare our results with bias parameters obtained from two and three points cross-correlation functions and with theoretical predictions from the excursion set peaks (ESP) model. For b_1, we get agreement at percent level with the correlations measurements and at 5% level with the ESP. This plus the very good agreement also found for the other bias parameters confirms the validity of the method and its efficiency.

In a separate project, we also report on new simulation results on the scale-dependent bias on primordial non-Gaussianity.

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Session Classification: 07 - Large scale structures