Contribution ID: **63** Type: **not specified**

N-body simulations with generic non-Gaussian initial conditions

Wednesday, April 20, 2011 2:50 PM (20 minutes)

The statistical nature of the initial conditions of the universe can be most directly probed by observations of the early universe, e.g. by the cosmic microwave background. However, primordial non-Gaussianity can also leave measurable signatures in the large-scale structure of the late-time universe. Observables like the galaxy cluster mass function, the galaxy bias and bispectrum are affected by the departures from Gaussianity in distinctive ways. In order to derive constraints on primordial non-Gaussianity from upcoming data of large-scale structure surveys, accurate theoretical modeling is needed. To this end, N-body simulations are indispensable, since the non-linear gravitational evolution has to be taken into account.
Here, we introduce a prescription for setting up non-Gaussian initial conditions for N-body simulations, where the departures from Gaussianity are specified by a given primordial bispectrum. Using this technique, we are able to run N-body simulations for the local and non-local types of non-Gaussianity. Results of these simulations regarding the halo mass function and the halo bias are presented and implications for large-scale structure probes of non-Gaussianity are discussed.
More details can be found in arXiv:1006.5793 and arXiv:1102.3229.

Primary author: Dr WAGNER, Christian (ICC, University of Barcelona)

Co-authors: Prof. VERDE, Licia (ICC, University of Barcelona); Dr BOUBEKEUR, Lotfi (University of Valencia)

Presenter: Dr WAGNER, Christian (ICC, University of Barcelona)

Session Classification: Contributed Talks