LABORATORI NAZIONALI DEL GRAN SASSO

SEMINAR ANNOUNCEMENT

Massimo Pietroni

INFN Padova

Understanding basic physics from the Large Scale Structure of the Universe

The study of the Large Scale Structure of the Universe will provide, in the near future, a wealth of information on the nature of Dark Matter and Dark Energy as well as on other key issues such as neutrino masses and the statistics of primordial perturbations. In order to compute the relevant observables at the necessary accuracy level, N-body numerical simulations require large computational times, which greatly restricts the domain of physical models that can be explored. I will review semi analytical methods, based on Eulerian perturbation theory, as a promising tool to follow the time evolution of cosmological perturbations at small redshifts and at mildly nonlinear scales. These methods, besides greatly reducing computational times, are also more flexible than N-body simulations towards the extension to non-LambdaCDM scenarios.

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