



Contribution ID: 29

Type: **not specified**

The generation of vorticity in cosmological N-body simulations

Thursday 25 October 2018 16:30 (30 minutes)

The evolution of cosmological perturbations, at large scales, is primarily determined by the gravitational clustering of cold dark matter, which has traditionally been modelled as a pressureless perfect fluid. At small scales and at late times however, orbit crossing leads to a nonzero velocity dispersion and vorticity in the dark matter distribution, and while several studies of orbit crossing in the context of perturbation theory have been recently presented, a full description is still lacking. The alternative is to numerically investigate the generation of vorticity, and in this work, we've performed N-body simulations using the publicly available relativistic code "gevolution". I will present how the vorticity field is calculated and the convergence studies performed. Finally, I will describe the obtained features of the vorticity power spectra, notably its large and small scale behaviour as well as redshift dependence, and compare it with related work. I will also present some novel results for the power spectra of the velocity dispersion and vector perturbations of the metric.

Presenter: JELIC-CIZMEK, Goran (Universite de Geneve (CH))

Session Classification: Afternoon session