



Advances in Astronomy

Special Issue on Analytical Models of the Nonlinear Clustering of Matter in the Era of Euclid Survey

CALL FOR PAPERS

Over the past decades observations of the large-scale distribution of galaxies in the universe have provided key insights on its matter content and state of expansion. In the future, a novel generation of galaxy surveys will drive cosmology in the “big-data” era. Observational programs such as the Euclid mission will accurately probe the clustering of matter over an unprecedented interval of scales which will allow performing novel tests of the nature of the invisible components in the universe. This requires the availability of theoretical model predictions capable of accounting for the departures from the linear regime of gravitational collapse of matter at small scales.

We invite investigators to contribute review and original papers describing recent findings in the field of analytical models of the nonlinear clustering of matter in view of the upcoming generation of galaxy surveys such as Euclid.

Potential topics include, but are not limited to:

- ▶ Nonlinear clustering of matter: this would summarize progress in the computation of nonlinearities on the matter power spectrum and 2-point correlation function with Perturbation Theory and beyond. It will include discussions on the accuracy of model predictions in relation to high-precision measurements from upcoming surveys and extend to nonstandard cosmological models
- ▶ Halo mass function: this would summarize the different approaches to predict the abundance of Dark Matter halos at different redshifts and different cosmologies from first-principles. It will include discussions on model comparison with N-body simulation results and the impact of theoretical uncertainties on observables of the cosmic matter distribution. Recent progress in the computation of the matter bispectrum and of redshift space distortions will be also reported
- ▶ Halo bias: this would summarize the different approaches to compute the halo bias at different redshifts and different cosmologies. It will include discussions on the comparison with N-body simulations results and observational consequences

Authors can submit their manuscripts via the Manuscript Tracking System at <http://mts.hindawi.com/submit/journals/aa/amnl/>.

Lead Guest Editor

Pier-Stefano Corasaniti, CNRS & Observatoire de Paris, Meudon, France
pier-stefano.corasaniti@obspm.fr

Guest Editors

Vincent Desjacques, University of Geneva, Geneva, Switzerland
vincent.desjacques@unige.ch

David Mota, University of Oslo, Oslo, Norway
d.f.mota@astro.uio.no

Massimo Pietroni, INFN-University of Padua, Padua, Italy
pietroni@pd.infn.it

Manuscript Due

Friday, 1 July 2016

First Round of Reviews

Friday, 23 September 2016

Publication Date

Friday, 18 November 2016