Séminaire du Laboratoire de l'Accélérateur Linéaire

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Combining cosmological probes : cluster abundances and galaxy clustering

Galaxy clustering is a long standing probe of both cosmological parameters and galaxy formation physics, in particular through the analysis of the galaxy 2-point correlation in real or harmonic space. The ongoing Dark Energy Survey (DES) will enable unprecedented studies on these aspects. However galaxy clustering alone suffers from parameter degeneracies, as well as a saturation of the extractable information on small scales due to non-linear effects. I will present a path to alleviate these issues by adding the information from another probe : cluster number counts. I will show how the joint covariance of these probes can be predicted using the halo model complemented with a Halo Occupation Distribution (HOD). In particular the cross-covariance, measuring how these probes are correlated, is shown to be important on small scales and/or low redshifts, and can be reproduced only with a fully non-linear model. I will present ongoing comparison of these predictions with N-body simulations, and will conclude with a Fisher analysis showing the synergy of the probes for cosmological and HOD parameters.

Salle 101 du LAL - Bât. 200, Orsay

Thé et café seront servis 5 mn avant le séminaire