



SEMINAIRE régulier du Service d'Astrophysique

DYNAMICS OF THE LOCAL UNIVERSE: COSMIC FLOWS, VOIDS AND THEIR COSMOLOGICAL IMPLICATIONS

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11h00

Although we now have access to very detailed galaxy catalogs, our knowledge of the spatial distribution of dark matter remains limited. A valuable source of information lies in the peculiar velocity field of the galaxies, which traces the dynamics of the dark matter at various scales. Unfortunately, these velocities are very difficult to observe. We present here an alternative approach to measure these velocities which relies on reconstructing them directly from redshift catalogs. In particular, we use the so-called Monge-Ampere-Kantorovitch reconstruction method. This method helps also at finding and characterizing dynamically the voids.

Having tested this method on N-body simulations and mock galaxy catalogs, we apply it to a real galaxy sample: the 2MASS Redshift survey. We study the origin of the Cosmic microwave Background dipole, precisely the motion of the Local Group relative to it. We study the problems that lie beyond 40 Mpc/h and the cosmological implications of the estimated large scale bulk flows. Having studied the bulk flow, we make a direct comparison of reconstructed velocities and the observed distances in our neighborhood of 30 Mpc/h and provide an independent estimation of the density parameter. This can be used to reduce the degeneracy in the parameter space of the present cosmological cold dark matter model.



Un café sera servi 15 minutes avant le séminaire

Ce séminaire aura lieu au CEA Saclay – Orme des Merisiers –bâtiment 709, Salle 220.