

Seminario DRCC, 12/06, 16.00

"Alternative Cosmologies: Dark Energy and Dark Matter"

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Abstract: Although successful on explaining various observations, like Supernovae Ia, Baryon Acoustic Oscillations and Cosmic Microwave Background, the so called cosmic concordance model, LambdaCDM, has problems on large and small scales. Concerning the cosmological constant (Lambda), it suffers with the Cosmological Constant Problem (CCP), namely, the observed Lambda is various orders of magnitude smaller than expected by theoretical estimates. Concerning Cold Dark Matter (CDM), it suffers with some small scale problems: too few observed satellite galaxies as compared to simulations, much peaky galaxy density profiles expected from simulations (cuspy/core problem) etc. In this context, Alternative Cosmologies changing the component that yields expansion acceleration (predicted by SNe Ia), avoiding the CCP, or changing the DM component (with Scalar Field Dark Matter, Spinors etc.) in order to avoid the small scale problems, are often suggested in the literature and must be tested against available observational data.