

Dark Gravity Confronted with Supernovae, Baryonic Oscillations and Cosmic Microwave Background Data

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Abstract : Dark Gravity is a natural extension of general relativity in presence of a flat non dynamical background. Matter and radiation fields from its dark sector, as soon as their gravity dominates over our side fields gravity, produce a constant acceleration law of the scale factor. After a brief reminder of the Dark Gravity theory foundations, the confrontation with the main cosmological probes is carried out. We show that, amazingly, the sudden transition between the usual matter dominated decelerated expansion law $a(t) \propto t^{2/3}$ and this accelerated expansion law $a(t) \propto t^2$ predicted by the theory should be able to fit the main cosmological probes (SN, BAO, CMB and age of the oldest stars data) but also direct H_0 measurements with two free parameters only: H_0 and the transition redshift.

Keywords : anti-gravity, negative energies, time reversal, field discontinuities, dark energy theory

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