

The search for modified gravity signatures within early and late time cosmological data

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In this talk I will review how modified gravity parametrisations can, in principle, be exploited to not only test general relativity, but also tackle the problematic tensions that riddle cosmology in its current state, considering these issues by the point of view of both background observables and perturbations. More precisely, I will aim to provide insight into questions such as: to which extent are modifications to the Hubble expansion rate, within $f(R)$ and $f(R,T)$ theories, valid and useful to resolve the Hubble tension, according to SNe and BAO data? Can phenomenological modifications in the growth of the large scale structure, introduced at the level of the linear perturbation equations in general relativity, be detected/detectable by data such as CMB lensing?

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