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Effective theory of dark energy and kinetic matter mixing

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The “Effective theory of dark energy” is a simple, general and effective way to bridge theory and observations in dark energy and modified gravity scenarios based on a single scalar field. I will illustrate its application to models that admit a kinetic mixing between matter and the scalar field, which I’ll call “Kinetic Matter Mixing”. I will argue that this is a truly physical effect independent of the metric used to describe the action and show that it has the peculiar consequence of weakening gravity on short scales. Finally, I will discuss the impact on the matter power spectrum and the angular power spectrum of the CMB computed with a Boltzmann code, without resorting to the quasi-static approximation, and comment on the validity of the latter.

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