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## Varying alpha through the dynamics of dark energy

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We propose a cosmological model that predicts the variation of the fine structure constant  $\alpha$  with redshift, where the electromagnetic sector couples to the kinetics of a canonical scalar field  $\phi$ . This is a generalization of the usual linear dependence of the interaction term on  $\phi$ . This theory can be seen as a disformal coupling with radiation, where the conformal factor depends on the kinetic term of the scalar source. We have studied the phenomenology of the model by particularizing the scalar field as the quintessence component driving the current acceleration. We found the remarkable feature that the evolution of  $\alpha$  follows the Hubble flow, slowing down at late times during dark energy dominance. We have constrained the free parameters with measurements of BBN, Planck, quasar absorption spectra, atomic clocks, and tests of the weak equivalence principle. The variation of the recombination redshift leads to a geometric degeneracy between  $\alpha$  and  $H_0$ , which can tackle the Hubble tension.

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