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Fitting the DESI BAO Data with Dark Energy Driven by the Cohen–Kaplan–Nelson Bound

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Motivated by the work of Cohen, Kaplan and Nelson (CKN) in which the authors argue that gravity resticts the range of validity of a QFT, we consider a time-dependent dark energy density, scaling proportional to the squared Hubble parameter $H(z)$.
These models are of particular interest in the light of the recent data release of the DESI collaboration, since the measurements show an increasing preference for time-depending dark energy models in comparison to the ΛCDM model.
In our work, we compare the generalized CKN models to DESI BAO, supernova datasets and model-independent Hubble measurements and find a preference of up to $2.6\,\sigma$ over the ΛCDM model.

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