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Simple quintessence models in light of DESI-BAO observations

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Recent analyses from the DESI collaboration suggest that the dark energy density of the Universe may be decreasing with time, slowing the acceleration of the scale factor a. Typically these studies are performed assuming an ansatz for the equation of state $w(a)$. In this talk, we present simple models of a scalar quintessence potential with linear and quadratic behavior, which could be more representative of real models than particular parametrizations of $w(a)$. We observe a significant preference for dynamical dark energy when using supernova data from DESY5 along with DESI BAO and Planck data, at the cost of slightly exacerbating the Hubble tension. However, when using supernova data from Pantheon+ or Union3, we find only a mild preference for dynamical dark energy.

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