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Reconstructing the growth and expansion history. The case for negative dark energy?

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The consistency between the cosmic expansion and growth may hold clues about the nature of the acceleration of the Universe. Using model-independent methods, we reconstruct the growth history from redshift-space distortion and deduce the corresponding expansion history, which we test against supernovae data. Motivated by these results, we then introduce a model of two-component dark energy with a negative cosmological constant hidden behind a phantom-like fluid, and study the viability of such models against state-of-the-art data. While the model does not show better evidence than a cosmological constant, it is still consistent with the data.

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