

Abstract Submitted
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Forecasting cosmological parameter constraints from near-future space-based galaxy surveys ANATOLY PAVLOV, Kansas State University, LADO SAMUSHIA, University of Portsmouth, BHARAT RATRA, Kansas State University — The next generation of space-based galaxy surveys are expected to measure the growth rate of structure to about a percent level over a range of redshifts. The rate of growth of structure as a function of redshift depends on the behavior of dark energy and so can be used to constrain parameters of dark energy models. In this work we investigate how well these future data will be able to constrain the time dependence of the dark energy density. We consider parameterizations of the dark energy equation of state, such as Λ CDM and ω CDM, as well as a consistent physical model of time-evolving scalar field dark energy, ϕ CDM. We show that if the standard, specially-flat cosmological model is taken as a fiducial model of the Universe, these near-future measurements of structure growth will be able to constrain the time-dependence of scalar field dark energy density to a precision of about 10%, which is almost an order of magnitude better than what can be achieved from a compilation of currently available data sets.

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