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Lensing convergence and anisotropic dark energy in galaxy redshift surveys

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Analyses of upcoming galaxy surveys will require careful modelling of relevant observables such as the power spectrum of galaxy counts in harmonic space $C\ell(z,z')$. We investigate the impact of disregarding relevant relativistic effects by considering a model of dark energy including constant sound speed, constant equation of state w0, and anisotropic stress. Here we show that neglecting the effect of lensing convergence will lead to substantial shifts in cosmological parameters such as the galaxy bias b0, the value of the dark energy equation of state today w0, and the Hubble constant H0. Interestingly, neglecting the effect of lensing convergence in this kind of models results in shifting H0 downwards, something which could shed light on the current tension between local and CMB determinations of the Hubble constant.

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