

A model-independent test of gravity from the Weyl potential evolution

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To test the vast number of modified gravity models, a systematic and comprehensive approach is necessary when analysing the data from cosmological surveys. The novel observable \hat{J} , capturing the evolution of the combined gravitational potential $\Psi + \Phi$, provides a powerful and model-independent test of gravity. Recently, we have performed the first measurement of this observable from Dark Energy Survey data (C. Bonvin, I. Tutusaus & N. Grimm, arXiv:2312.06434), combining galaxy-galaxy lensing and galaxy clustering data. Interestingly, we find a tension with the prediction of the standard cosmological model, reaching 3.1 sigma at $z=0.48$. In my lightning talk, I will present this novel observable and demonstrate its remarkable capacity to test gravity in a model-independent manner.

Would you be interested in presenting a poster? (this will not impact the decision on your talk)

yes

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