

# Testing gravity through the distortion of time

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The distribution of galaxies provides an ideal laboratory to test deviations from General Relativity. In particular, constraints on gravity modifications are commonly obtained by measuring the growth of cosmic structures through redshift-space distortions. However, such constraints rely on the validity of the weak equivalence principle, which has never been tested for the dark matter component. In my talk, I will employ data from the Sloan Digital Sky Survey to show that dropping this restrictive assumption leads to severe degeneracies and makes it challenging to distinguish fundamental gravity modifications from interactions in the dark sector. Luckily, I will demonstrate that it is possible to break such degeneracies and recover tight constraints thanks to measurements of the distortion of time expected from upcoming galaxy surveys.

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