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Propagation of gravitational waves in doubly-coupled bigravity

I will discuss the implications of the recent detection of gravitational waves emitted by a pair of merging neutron stars and their electromagnetic counterpart, events GW170817 and GRB170817A, on the viability of the doubly-coupled bimetric models of cosmic evolution, where the two metrics couple directly to matter through a composite, effective metric. I will show that the bounds on the speed of gravitational waves place strong constraints on the doubly-coupled models, forcing the two metrics to be proportional at the background level or the models to become singly-coupled. Proportional backgrounds are particularly interesting as they provide stable cosmological solutions with phenomenologies equivalent to that of LCDM at the background level as well as for linear perturbations, while nonlinearities are expected to show deviations from the standard model.

Summary

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