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Horndeski and the Sirens

In dark-energy models where a scalar field is nonminimally coupled to the spacetime geometry, gravitational waves are expected to be supplemented with a scalar mode. Such scalar waves may interact with the standard tensor waves, thereby affecting their observed amplitude and polarization. Understanding the role of scalar waves is thus essential in order to design reliable gravitational-wave probes of dark energy and gravity beyond general relativity. In this talk, I will discuss gravitational wave propagation signatures from a large class of alternative gravity theories and some possible limitations.

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