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Induced gravitational waves in general cosmologies

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Gravitational waves (GWs) are unavoidably induced at second order in cosmological perturbation theory. The so-called induced GWs are a crucial counterpart of the primordial black hole scenario and might be observable by future space based gravitational waves detectors. However, only the generation during radiation and matter domination eras has been analytically studied. In this talk, I will show new analytical results for the scalar induced GWs in decelerating cosmologies. I will argue that the induced GW spectrum can be a probe of the thermal history of the universe. Lastly, I will discuss possible degeneracies with known sources, such as first order phase transitions.

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