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Gravitational Waves in Gauss-Bonnet Cosmologies

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Gravitational Waves are an excellent way to probe the evolution of the universe way back before BBN. In particular, they offer a unique way to test modified Einstein equations. At the level of the equation of motion, the simplest example of Horndeski's theory containing higher-curvature terms is the dilaton-Einstein-Gauss-Bonnet (dEGB) the- ory, obtained by adding a specific quadratic combination of the curvature non-minimally coupled to a scalar field. In 2303.05813 we used the Weakly Interacting Massive Particle (WIMP) thermal decoupling scenario to explore dEGB theories. We now study the consequences of the modification of the propagation of GW when there is a different equation of state other than radiation. In some of the scenarios studied 2303.05813 we can put limits on the reheating temperature of the universe.

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