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Gravitational wave production in higher derivative gravity

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Gravity can be embedded into a renormalizable theory by means of adding quadratic in curvature terms. However, this at first leads to the presence of the Weyl ghost. It is possible to get rid of this ghost if the locality assumption is weakened and the propagator of the graviton is represented by an entire function of the d'Alembertian operator without new poles and zeros. Models of this type admit a cosmological solution describing the R^2 inflation. We study graviton production after inflation in this type of models and show that the perturbative gravitational wave production is negligible despite the presence of the higher derivative operators which could potentially cause instabilities.

Primary authors: STAROBINSKY, Alexei; TOKAREVA, Anna (Imperial College London); KOSHELEV, alexey (Universidade da Beira Interior)

Presenter: TOKAREVA, Anna (Imperial College London)

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