

Whispers from the Dark Universe - Particles & Fields in the Gravitational Wave Era

CLUSTER OF EXCELLENCE
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DESY THEORY WORKSHOP

WHISPERS FROM THE DARK UNIVERSE – PARTICLES & FIELDS IN THE GRAVITATIONAL WAVE ERA

HELMHOLTZ

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Gravitational waves in ultra-slow-roll and their anisotropy at two loops

Wednesday 25 September 2024 17:02 (16 minutes)

We compute the non-Gaussian corrections to the energy density and anisotropies of gravitational waves induced after an ultra-slow-roll phase of inflation by using a diagrammatic approach, and present the corresponding Feynman rules. Our two-loop calculation includes both the intrinsic non-Gaussianity of the inflaton perturbation $\delta\phi$ and the non-Gaussianity arising from the nonlinear relation between the latter and the curvature perturbation $\mathcal{R}$. We apply our formalism to an analytical model in which the ultra-slow-roll phase is followed by a constant-roll stage with a non-vanishing second slow-roll parameter η , and address the renormalization of the one-loop scalar power spectrum in this scenario.

Primary author: REY IDLER, Julian Leonardo (T (Cosmology))

Presenter: REY IDLER, Julian Leonardo (T (Cosmology))

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