



General Relativity and Quantum Cosmology

Inflationary Perturbations in Palatini Generalised Gravity

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We examine the generation of primordial perturbations during an inflationary epoch in generalised theories of gravity when the equations of motion are derived using the Palatini variational principle. Both $f(R)$ and Scalar-Tensor theories are considered and we compare our results with those obtained under the conventional metric formalism. Non-linear generalisations of the action lead to different theories under the two variational choices and we obtain distinct results for scalar and tensor spectral indices and their ratio. We find the following general result; inflation driven solely by $f(R)$ modifications alone do not result in suitable curvature perturbations whilst Scalar-Tensor theories generate nearly scalar invariant curvature perturbations but no tensor modes.

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