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Stable Cosmology in Generalised Massive Gravity

Generalised Massive Gravity is an extension of de Rham-Gabadadze-Tolley theory where the translation invariance in the Stuckelberg field space is broken. This allows the mass parameters to be promoted to functions of the Stuckelberg fields. We consider an exact cosmological background in this theory and study the stability of perturbations. We derive conditions to avoid ghost, gradient and tachyonic instability. The cosmology is an extension of the self-accelerating branch of the constant mass parameter theory, but now all five massive graviton polarisations propagate. For concreteness, we consider a minimal version of the theory where cosmology undergoes an accelerated expansion at late times and show that the perturbative stability is preserved for a range of parameters.

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