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Probing higher order Starobinsky-inflation with CMB and 21cm

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Starobinsky (or R^2)-inflation is one of the current best-fit models to the Planck measurements. Extending this effective theory of gravity with the additional third order term to $f(R) = M_P^2 \left(R + \frac{1}{2M^2} R^2 + \frac{c}{3M^4} R^3 \right)$ introduces the dimensionless parameter c . Using the Planck measurements, we obtain constraints on the parameters of the fundamental Lagrangian and determine the combined sensitivity of next-generation CMB experiments and future neutral hydrogen maps from SKA to third-order gravity and beyond.

Summary

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