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Cosmological implications of the classic and generalized Starobinsky model and α-attractors on CMB observables and reheating.

Cosmic inflation resolves the inconsistencies of the Standard Cosmological Model, giving rise to various models to describe this stage. Among them, the Starobinsky model stands out derived from $f(R)$ theories, its plateau potential in the Einstein frame favors the *slow-roll* regime. Thus, in this work, an analytical and numerical validation of the classic model and its generalization $f(R) = R+\alpha R^{2p}$ is performed to determine the observables n_s and r, contrasting their predictions with recent data from Planck 2018, BICEP/Keck, and ACT DR6. Furthermore, the study extends to the family of α-attractors, linking CMB observables with the reheating temperature T_{re}. Finally, this link allows constraining particle production and projecting the sensitivity of future missions including LiteBIRD, SO, and CMB-S4.

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