

Constraining reheating temperature by ACT DR6

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The latest Atacama Cosmology Telescope (ACT) Data Release 6 suggests the spectral index of the curvature perturbation $n_s = 0.974 \pm 0.003$, about 0.01 larger than the Planck 2018 result, which revives chaotic inflation with a power-law potential $V(\phi) \sim |\phi|^p$. We revisit such a model in the light of ACT DR6, and carefully takes into account the intermediate oscillatory inflation stage after slow-roll inflation when $p < 1$. We find that such models are consistent with ACT DR6, which also implies $p < 2/3$ and $T_{\text{reh}} \geq 10^{11}$ GeV.

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