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Observational Consequences of Scalar-tensor Entanglement During Inflation

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We consider the effects of entanglement in the initial quantum state of scalar and tensor fluctuations during inflation. We allow the gauge-invariant scalar and tensor fluctuations to be entangled in the initial state and compute modifications to the various cosmological power spectra. We compute the angular power spectra (C_l's) for some specific cases of our entangled state and discuss what signals one might expect to find in CMB data. This entanglement also can break rotational invariance, allowing for the possibility that some of the large scale anomalies in the CMB power spectrum might be explained by this mechanism.

Summary

Primary author: BOLIS, Nadia (UC Davis)

Presenter: BOLIS, Nadia (UC Davis)

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