

Robert Caldwell: “A unique and observable prediction of inflation: A toy model of axion gauge field inflation”

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We present a toy model of an axion gauge field inflation scenario that yields viable density and gravitational wave spectra. The scenario consists of an axionic inflaton in a steep potential that is effectively flattened by a coupling to a collection of non-Abelian gauge fields. The model predicts a blue-tilted gravitational wave spectrum that is dominated by one circular polarization, resulting in unique observational targets for cosmic microwave background (CMB) and gravitational wave experiments. The handedness of the gravitational wave spectrum is incorporated in a model of leptogenesis through the axial-gravitational anomaly. In order to explain the matter-antimatter asymmetry of the Universe, we obtain an approximate lower bound on the tensor-to-scalar ratio that is within reach of CMB experiments

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