Abstract Submitted
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Projective Origins of the Inflaton[1] KENNETH HEITRITTER, University of Iowa — We detail how the recently developed projectively-invariant gravitational model, Thomas-Whitehead Gravity (TW Gravity), naturally gives rise to a field acting as the inflaton. In the formulation of TW Gravity, a field $\mathcal{D}_{\dashv\lfloor}$ is introduced into the components of a projective connection. This field, $\mathcal{D}_{\dashv\lfloor}$, is related to a rank-two tensor field $\mathcal{P}_{\dashv\lfloor}$. Through the action of TW Gravity, in terms of projective curvature invariants, the tensor field $\mathcal{P}_{\dashv\lfloor}$ acquires dynamics. Decomposing $\mathcal{P}_{\dashv\lfloor}$ into its trace and traceless degrees of freedom, we show that the action can describe a type of non-minimally coupled inflaton action. We calculate values for the spectral index n_s, tensor-to-scalar ratio r, and scalar amplitude A_s. These calculated quantities are shown to lie within bounds from the most recent Planck analysis, for a discrete range of free parameters.

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