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Classification of Teleparallel Horndeski Cosmology via Noether Symmetrie

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Abstract

After the recent detection of GW170817, the most interesting terms of Horndeski theory were severely constrained. Nevertheless, the analog of Horndeski theory in the Teleparallel Gravity framework is far richer in structure since the extra term in the Lagrangian, Ltele emerges.
As a result, the terms that were eliminated in standard Horndeski theory could, in this case, survive through the Lagrangian contribution leading to a varied phenomenology.

In order to determine the unknown functions Gi(φ; x) of the Horndeski analog in the Teleparallel framework, we adopt Noether point symmetries as a classification criterion. The existence of such symmetry not only selects the form of the Gi(φ; x) but also could lead to valid cosmological models for future research and study.

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