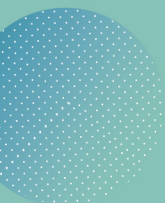




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Symmetry restoration for TDiff scalar fields

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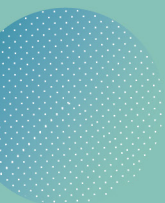
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Abstract

We explore the idea of restoring the full diffeomorphism (Diff) invariance in theories with only transverse diffeomorphisms (TDiff) by the introduction of additional fields. In particular, we consider in detail the case of a TDiff invariant scalar field and how Diff symmetry can be restored by introducing an additional vector field. We reobtain the corresponding dynamics and energy-momentum tensor from the covariantized action and analyze the potential and kinetic domination regimes. For the former, the theory describes a cosmological constant-type behaviour, while for the latter we show that the theory can describe an adiabatic perfect fluid whose equation of state and speed of sound can be obtained in a straightforward way.

