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Modified gravity model without dark matter and dark energy

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We explore a model in modified $f(R)$ gravity where the modification in geometrical part of the Einstein-Hilbert action leads to complete elimination of the need for dark matter and dark energy, both. This is specifially obtained by the scalar fields induced in the Einstein's gravity whose dynamical oscillations account for the effects (otherwise attributed to dark matter and dark energy in standard Lambda CDM model) throughout the evolution of the universe, and is found to be strongly influlential at the epochs of structure formation. The parameters such as mass of scalar fields in this model are constrained by observations and cosmological considerations.

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