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Dynamical system analysis of agegraphic dark energy in brane-induced gravity

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One of the main aspects of physics beyond the standard model is the concept of extra dimensions. Among many extra dimensional cosmological models the so called DGP model (also called brane-induced gravity) with two branches is of particular interest. In this manuscript we consider the normal branch of the DGP model in which the existence of a dark energy component is necessary to explain the late time acceleration of the universe. For this purpose, we assume agegraphic dark energy (ADE). The best reason for this combination is that both the braneworld theories and the ADE, result from the string theory. We study this model in a dynamical system approach where is a useful tools in investigating cosmological models. By defining a set of suitable new dimensionless variables, we find two critical points for the system and the related eigenvalues. The one which yields to $\omega_{tot} = 0$, represents matter dominated solution and is a repulsive point. But the other which always results $\omega_{tot} < -1/3$, corresponds to de-sitter phases and is a saddle point. Also, we find the effect of extra dimensions in eigenvalues. Finally, the phase trajectories and the evolutionary curves of the dimensionless density parameters will be shown.

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