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Dynamical system analysis in teleparallel gravity with boundary term

In this paper, we perform the dynamical system analysis of the cosmological models framed in the extended teleparallel gravity, the $f(T, B)$ gravity. We use the mapping, $f(T, B) = -T + f(T, B)$, and define the dynamical variables to form the autonomous dynamical system. The critical points are obtained in two well-motivated forms of $f(T, B)$, one that involves the logarithmic form of the boundary term B, and the other one is the non-linear form of the boundary term. The position of critical points is shown in the different evolutionary phases of the Universe such as radiation, matter, and de-Sitter phase. The stability condition of each of the critical points of both the models is derived and the behavior of each point has been obtained mathematically and through the phase portrait.
The evolution of standard density parameters such as radiation (Ω_r), matter (Ω_m), and dark energy (Ω_{DE}) are also analyzed. Further to connect with the present cosmological scenario, the behavior of deceleration and equation of state parameter both in the dark energy phase (ω_{DE}) and total (ω_{tot}) are
shown from the initial condition of the dynamical variables. The accelerating behaviour has been obtained for both models.

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