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Analytic bounds on asymptotic cosmologies

Thursday, 27 June 2024 17:00 (15 minutes)

Any scalar FLRW-cosmology with multi-field multi-exponential potentials exhibits a universal bound on late-time cosmic acceleration. We discuss the conditions under which scaling solutions are inevitable late-time attractors for this class of theories. Without the need to find explicit solutions to the cosmological equations, we are also able to identify bounds on the late-time expansion rate of the universe in the additional presence of fluids with constant equation of state and of scalars with exponential kinetic couplings. We can further see how the contraction rate of cosmologies with negative potentials can be bounded by similar methods as those for cosmic acceleration.

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