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A Modified Exponential Potential for Quintessence

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We examine a quintessence model with a modified exponential potential given by $V(\phi) = V_0(1 + e^{-\lambda\phi})$. We determine the evolution of the equation of state parameter, w_{ϕ} , and the density parameter, Ω_{ϕ} , as a function of the scale factor. Our model, unlike quintessence with a standard exponential potential, can produce an acceptable accelerated expansion at late times. The strongest constraints on the model come from CMB observations, rather than supernova data. The former give the limit $\lambda > 13$. This model provides a partial solution to the coincidence problem, but it does not explain why the accelerated expansion is beginning near the present day.

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