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A Novel Vacuum Cosmological Model

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A novel vacuum (Riemann-flat) exact solution to the cosmological General Relativistic field equations has the feature that it is independent of the form of the cosmic scale factor. Spatial sections of this model solution are negatively curved and thus can mimic the acceleration of comoving observers attributed to dark energy. We perform a fit to the Union2.1 supernovae data set, yielding ranges of values for a cosmological distance scale, $D = 1800^{+150}_{-135}$ Mpc and the Hubble-Lemaitre constant, $H_0 = 65^{+12}_{-10}$ km/s/Mpc, respectively.

Keyword-1

Cosmology

Keyword-2

Hubble Constant

Keyword-3

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