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Geometric model of dark energy according to projected hyperconical universes

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Using hyperconical universes with linear expansion, radially inhomogeneous metrics can be obtained by local time-preserved transformations. This model tends to a locally flat Friedman-Robertson-Walker metric with linear expansion. The corresponding luminosity distance was obtained and compared with the observations of 580 SNe Ia, taken from the Supernova Cosmology Project (SCP). The best fit of the hyperconical model obtains $\chi_0^2 = 562$, the same value that the standard Λ CDM model. Choosing a radially distorted stereographic projection and taking regional (second order) equality between the Hubble parameter obtained from both models, it is predicted that the dark energy density is $\Omega_\Lambda = 0.6937181(2)$.

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