Theoretical and observational compatibility of inhomogeneous hyperconical universes by using conformal projections

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The standard model satisfactorily describes an observed flat universe, which is accelerating and therefore composed of predominately dark energy. However, that energy has not measured from model-independent observations yet. Depending on the chosen frame theory, observations can be explained using different geometry, even with positive curvature [1]. For instance, conformal gravity can be used to obtain both dark energy and matter [2]. Alternatively, this study analyses locally conformal projections of inhomogeneous hyperconical universes to find compatible relations with the standard cosmology [3]. Choosing some parametric family of locally conformal transformations and taking regional (second order) equality between the Hubble parameter of both theories, it is predicted that the dark energy density should be $\Omega_\Lambda = 0.6937181(2)$ [4]. If a radially distorted stereographic projection is used, the distortion parameter is predicted about $\alpha = 0.325 \pm 0.005$ and empirically fitted as $\alpha = 0.36 \pm 0.02$ ($\chi_0^2 = 562$) according to 580 SNe Ia observations collected from the Supernova Cosmology Project (SCP) Union2.1 database [5].

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