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Probing the dynamical behavior of dark energy

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We investigate dynamical behavior of the equation of state of dark energy w_{de} by employing the linear-spline method in the region of low redshifts from observational data (SnIa, BAO, CMB and 12 $H(z)$ data). The redshift is binned and w_{de} is approximated by a linear expansion of redshift in each bin. We leave the divided points of redshift bins as free parameters of the model, if w_{de} changes its evolution direction in the considered region of redshift, the best-fitted values of divided points will represent the turning positions of w_{de}. These turning points are natural divided points of redshift bins, and w_{de} between two nearby divided points can be well approximated by a linear expansion of redshift. We only find two turning points of w_{de} in $z\in(0,1.8)$ and one turning point in $z\in (0,0.9)$, and $w_{de}(z)$ could be oscillating around $w=-1$. Moreover, we find that there is a 2σ deviation of w_{de} from -1 around $z=0.9$ in both correlated and uncorrelated estimates.

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