Title:	The International School for Advanced Studies (SISSA), find out more The International School for Advanced Studies (SISSA), find out more Low redshift observational constraints on tachyon models of dark energy
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Abstract:	The background evolution of an accelerated, dark energy dominated universe is aptly described by non-canonical tachyon scalar field models. The accelerated expansion of the universe is determined by the choice of a suitable scalar field potential; in the case of a tachyon field, a `runaway' potential. In the absence of a fundamental theory, dark energy properties are studied in a phenomenological approach. This includes determining the model parameters using observations and to probe the allowed deviation from the cosmological constant model. In this paper, we present constraints on tachyon scalar field parameters from low redshift data for two different scalar field potentials. These scalar field potentials have been crucial in tachyon dark energy studies. The datasets considered in this paper include the supernova type Ia data, independent measurements of the Hubble parameter and the Baryon Acoustic Oscillation data. In this paper, we present constraints on tachyon field parameters using these observations and their combination. A combination of the datasets indicates that those model parameters are preferred which emulate the cosmological constant model. The initial value of the scalar field, in the unit of the Hubble constant, is bounded from below and does not require fine-tuning at larger values.
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