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Dark Energy Models toward Observational Tests and Data

Abstract. An impressive amount of different astrophysical data converges towards the picture of a spatially flat universe undergoing a today phase of accelerated expansion. The nature of the dark energy dominating the Hubble flow of the universe is still unknown and a lot of different scenarios are viable candidates to explain such a cosmic acceleration. Methods employed to test these cosmological models are based on distance measurements to a particular class of objects (e.g. SNeIa), on lookback time to galaxy clusters and the age of the universe. In particular, the characterizing parameters of different classes of dark energy cosmological models are constrained to see whether they are in agreement with data. We critically compare and discuss these models and methods.