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Title: Hubble tension - Statistical review

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Abstract:

Given the availability of large number of data, cosmological parameter fitting is one of the most important analysis in cosmology. As the statistical tools used to fit parame- ters get better and precise, we notice tensions arising in the same set of parameters between different data sets. In this work, we intend to do a detailed analysis of Hubble Tension. Var- ious likelihoods, mainly Gaussian and Logistic distributions have been used to analyze the "PANTHEON" supernovae data set with different dark energy models, including \(\Lambda \text{CDM} \), wCDM and more. Using different tests(AIC, BIC, and KS-test) we establish that Logistic likelihood fits the data better comparing to Gaussian likelihood. Similar analysis has been done after binning the data which shows that for lower redshift data Logistic likelihood fits better but for higher redshift data both Gaussian and Logistic seems to fit the data equally. Furthermore, Baryon Acoustic Oscillations data have also been analyzed and compared with supernovae data.

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