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High-z Supernova Type Ia Data: non-Gaussianity and Direction Dependence

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We use the $\Delta\chi 2$ statistic introduced in Gupta, Saini & Laskar (2008); Gupta, Saini (2010) to study directional dependence, in the high-z supernovae data. This dependence could arise due to departures from the cosmological principle or from direction dependent statistical systematics in the data. We apply our statistic to the gold data set from Riess et al. (2004) and Riess et al. (2007), and Union2 catalogue from Amanullah et al. (2010). Our results show that all the three data sets show a weak but consistent direction dependence. In 2007 data errors are Gaussian, however other two data sets show non-Gaussian features.

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