Contribution ID: **61** Type: **Talk**

Quantifying the evidence for the current speed-up of the Universe with low and intermediate-redshift data. A more model-independent approach

Thursday, 5 September 2019 14:55 (25 minutes)

According to cosmological low and intermediate-redshift data, what is the statistical evidence in favor of the current speed-up of the Universe? Although this question seems to be kind of outdated, a review to the many papers that address this pivotal question in the literature tells us that the answer is not obvious at all. Determining the value of the deceleration parameter, i.e. q0=q(z=0), in the context of particular cosmological models, concrete parametrizations of the cosmographical functions, or even using truncated cosmographical expansions in which the truncation order is set in an ad hoc way can lead to biased estimations of both, q0 and its uncertainty. In this talk (based on arXiv:1810.02278, JCAP 05 (2019) 026) I present a new determination of q0 obtained with data from the Pantheon+MCT compilation of SnIa, cosmic chronometers and BAOs. I apply the so-called Weighted Function Regression method to reconstruct q(z) and the jerk in a more model-independent way than many other analyses in the literature, improving thereby the usual cosmograhical approach. We will see e.g., that using only the first two data sets and Jeffreys' scale and jargon the evidence for the current positive acceleration of the universe is only moderate, contrary to the more than 17\sigma-evidence found in the framework of the flat LCDM model. The level of evidence grows up to the very strong one when BAOs are also considered, giving rise to q0= -0.60 +- 0.10, with a deceleration-acceleration transition redshift at z_t = 0.80 +- 0.10.

Primary author: Dr GÓMEZ-VALENT, Adrià (Institut für Theoretische Physik (ITP) Heidelberg)

Presenter: Dr GÓMEZ-VALENT, Adrià (Institut für Theoretische Physik (ITP) Heidelberg)

Session Classification: Parallel Sessions: CMB, Expansion Rate, Thermal History (C.A.R.L., H09)

Track Classification: CMB, Universe Expansion, and Thermal History