

# An alternative explanation to accelerating Universe without $\Lambda$ in concordance with the last $H_0$ measured value

We perform an MCMC analysis with the most updated SN-Ia catalog using an alternative cosmological model named Delta Gravity. This model is based on a new Einstein-Hilbert action based on a new symmetry symbolized as  $\tilde{\delta}$ . This theory predicts an accelerating Universe without the need to introduce a  $\Lambda$  by hand in the equations.

The equations of motion that describe the expansion of the universe depend on two free parameters:  $L_2$  and  $C$  that are found by the MCMC simulation. Using these parameters we predicted cosmological parameters such as the Hubble Constant  $H_0$ , the age of the universe and the deceleration parameter  $q_0$ .

The most significant result is that Delta Gravity predicts that  $H_0$  is  $74.47 \pm 1.63$  km/(s Mpc). This value is in concordance with the last measurement of the  $H_0$  local value,  $73.83 \pm 1.48$  km/(s Mpc) (Riess 2018). This result is very important because could be an explanation to the  $H_0$  tension today.

## arXiv

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