

Double curvatures model using Fisher spectroscopic forecasts for Euclid

One of the main prediction of inflationary cosmology is the spatial flatness of the universe. The combination of observed CMB fluctuations with SNIa observations and BAO leads to a prediction of the spatial curvature parameter lower than $1e-4$. Observations have shown the acceleration of the expansion of the universe revealing the existence of two dark component : the dark matter and the dark energy. According to general relativity as the geometrical tensor is set equal to the matter energy tensor, the curvature parameter is uniquely related to it's energy content. It is therefore possible to test the general relativity at the background level by considering two independent parameters : a dynamical curvature related to the universe energy content, and a geometric curvature related to its curvature, which have both worse constraints than in the GR case.

This presentation will mainly focus on the estimation of the constraints we can provide on the dark energy equation of state parameters and on the two curvature parameters using forecasts with a Fisher approach. To do so we use a slight modified version of the spectroscopic Fisher code validated inside the IST. Since we are adding these two new parameters during the projection part of the code, no modification of the Boltzmann code is needed then we don't modify any input. These constraints will be compared to those obtained from present day data.

Summary

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