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The last 10 billion years of cosmic structure growth

Sunday 11 September 2022 16:30 (10 minutes)

The current constraints on the growth of perturbations are subject of debate. Cosmic shear observations show a lower value than that predicted by Planck. For instance, KiDS finds results 3\sigma away from Planck's value and data from DESY1 also points in the same direction. In this talk I will show a data driven reconstruction of the structure growth history from a combination of 6 different data sets that include galaxy clustering, weak lensing and CMB lensing (with DESY1 and KiDS-1000 among them). I will show that these data constrain the amplitude of fluctuations in the range 0.2 \lesssim z \lesssim 2 and give consistent growth histories. Furthermore, I will show that in the range 0.2 \lesssim z \lesssim 0.7 current data prefer a lower value than that predicted by Planck and that it is mostly driven by cosmic shear observations. I will also discuss the possible implications that this result may have on Modified Gravity. Finally, I will present a public repository of large-scale structure data that will be soon released and will allow consistent multi-survey analysis as the one presented in this talk.

Presenter: Mr GARCIA GARCIA, Carlos (University of Oxford)