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Improving LSS analysis with velocities and model-independence

Monday 23 October 2023 09:00 (1 hour)

The large upcoming spectroscopic surveys like DESI and Euclid will enable a very precise measurement of the matter power spectrum and bispectrum on a vast range of scales. I will discuss how this precision can be improved with the combined use of galaxies and standard candles as tracers of the matter and velocity fields. I will show the benefits of using either supernovae or bright standard sirens as standard candles for this purpose. I will also discuss how this increase in precision can come hand-in-hand with improved accuracy by using a methodology which analyzes the mildly non-linear scales of the LSS data without the need to make any model assumptions on the nature of dark energy. Finally, I will forecast the achievable precision with this methodology for the most relevant cosmological parameters and discuss how this could resolve the issue of the cosmological tensions.

Presenter: QUARTÍN, Miguel (Universidade Federal do Rio de Janeiro)