

## Observational Challenges for the Standard Cosmological Model and Theoretical Models

I will briefly review the main challenges for the standard cosmological model that have been persisting and amplifying during the past few years and in particular the Hubble tension, the growth of perturbations tension and the cosmic dipoles that challenge the cosmological principle. Then I will focus on the Hubble tension which is effectively a calibrator tension and review the classes of models that attempt to address it. Special attention will be paid to models that involve an abrupt transition event either in the gravitational constant or in the dark energy density.

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