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Recent challenges to the standard cosmological model (Part 2)

Monday, 2 March 2026 14:00 (1 hour)

The Lambda Cold Dark Matter (LCDM) model has been remarkably successful in describing a wide range of cosmological observations, in particular the very precisely measured anisotropies of the cosmic microwave background (CMB) temperature and polarization. In recent years, other types of cosmological data have reached levels of accuracy that allow them to constrain certain LCDM parameters with precision comparable to that of the CMB. Interestingly, this has led to several disagreements, or "tensions", with varying levels of statistical significance in parameter estimates obtained from different datasets within LCDM. The most prominent example is the Hubble tension, although it is not the only such discrepancy. This has naturally generated considerable excitement in the cosmology community because these tensions may signal new physics beyond what is included in LCDM. My lectures will provide an overview of the recent challenges to the LCDM model and describe the leading theoretical ideas proposed to resolve these tensions.

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