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Do we understand cosmic structure growth? Insights from new CMB lensing measurements with the Atacama Cosmology Telescope

Tuesday, 9 July 2024 12:30 (30 minutes)

One of the most powerful tests of our cosmological model is to verify the predicted growth of large-scale structure with time. Intriguingly, many recent measurements have reported small discrepancies in such tests of structure growth ("the S_8 tension"), which could hint at systematic errors or even new physics. Motivated by this puzzling situation, I will present new determinations of cosmic structure growth using CMB gravitational lensing measurements from the Atacama Cosmology Telescope (ACT). These ACT DR6 CMB lensing measurements allow us to directly map the dark matter distribution in projection out to high redshifts; new cross-correlations of CMB lensing with unWISE galaxies also allow us to probe the matter tomographically. I will discuss the implications of our lensing results for the validity of our standard cosmological model as well as for key cosmological parameters such as the neutrino mass and Hubble constant.

Presenter: SHERWIN, Blake (University of Cambridge)

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