

Testing Einstein's Gravity on Large Scales

A little over a decade has passed since two teams studying high redshift Type Ia supernovae announced the discovery that the expansion of the universe was accelerating. After all this time, we're still not sure how cosmic acceleration fits into the theory that tells us about the large-scale universe: General Relativity (GR). As part of our search for answers, we have been forced to question GR itself. But how will we test our ideas? We are fortunate enough to be entering the era of precision cosmology, where the standard model of gravity can be subjected to more rigorous testing. Various techniques will be employed over the next decade or two in the effort to better understand cosmic acceleration and the theory behind it. In this talk, I will describe cosmic acceleration, current proposals to explain it, and weak gravitational lensing, an observational effect that allows us to do the necessary precision cosmology.