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“Statistical Challenges in Cosmology”

Broadly speaking, the precision measurement of cosmological parameters involve the choice and estimation of suitable summary statistics from the pixel-level data, accurate modeling of these summary statistics including observational and astrophysical systematics, and parameter inference. In this talk I will highlight representative statistical challenges in these key analysis steps, using the cosmology analysis plans for the Large Synoptic Survey Telescope (LSST) as an example. In particular, I will discuss the challenges of jointly analyzing different cosmological observables, such as galaxy clustering, weak lensing, and supernovae.