

Contributed Talk

Splinter eROSITA

FORECASTING IMPACT OF DES WEAK LENSING MASS
CALIBRATION ON eROSITA CLUSTER COSMOLOGY CONSTRAINTS

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In this work we forecast the cosmological constraints obtained from the number counts of eROSITA selected galaxy clusters, with special focus on the improvement of such constraints coming from the weak lensing calibration of the cluster mass with Dark Energy Survey (DES) imaging data. To perform this forecast, we construct a galaxy cluster mock catalogue taking into account (1) the theoretically determined abundance of halos as a function of mass and redshift, (2) the observed scaling relation involving halo mass, redshift and the observable X-Ray properties, and (3) the eROSITA response. We also simulate the DES weak lensing signal of these objects, adopting realistic noise from ongoing DES analyses. Then, we simultaneously fit the abundance of eROSITA clusters and the weak lensing signal with a Bayesian hierarchical model to jointly constrain the X-Ray scaling relation parameters and the cosmological parameters. We show that the addition of the DES weak lensing data significantly improves the constraints on both the X-Ray scaling relation parameters and the cosmological parameters.