

Contributed Talk

Splinter eROSITA

CALIBRATING THE MASSES OF HIGH-REDSHIFT GALAXY CLUSTERS  
WITH DEEP WEAK LENSING DATA

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Cosmological constraints from galaxy cluster surveys, such as the one *eROSITA* will conduct, are currently limited by the accuracy and precision of the cluster mass calibration. In particular, constraints on dark energy properties and modified gravity theories require an accurate calibration over a wide redshift range. Ongoing ground-based weak lensing surveys employing wide-field imagers have the potential to provide the required calibration at low and intermediate redshifts. However, at higher redshifts deeper images with superb resolution are required in order to resolve the small and faint distant background galaxies.

In this talk I will first summarise and present results from our HST campaign to calibrate the masses of distant SPT clusters. First results have been presented in Schrabback et al. (2016; arXiv:1611.03866), and we are currently working on the analysis of an expanded sample at  $z \sim 0.9$ , as well as our latest Cycle 24 programme targeting 9 high SZ-significance clusters at  $z > 1.2$ . In addition, I will present results from a pilot study, which demonstrates that very deep good-seeing VLT/HAWK  $K_s$  images yield a weak lensing performance that matches single-orbit depth HST/ACS mosaics, thereby providing a viable alternative for the calibration of mass-observable scaling relations for high-mass clusters at redshifts  $0.7 \lesssim z \lesssim 1.1$ .