

Contributed Talk

Splinter eROSITA

THE X-RAY CLUSTER SURVEY WITH eROSITA:  
CONSTRAINTS ON DARK-ENERGY

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We forecast the potential of the X-ray galaxy-cluster telescope eROSITA to constrain Dark-Energy models. We focus on spatially-flat cosmological scenarios with either constant or time-dependent Dark-Energy equation of state parameters. The results are given by the combination of the abundance and spatial clustering of a synthetic photon-count limited sample of clusters of galaxies up to  $z \sim 2$ . We quantify our findings according to different scenarios for the availability of 1) X-ray follow-up observations, 2) photometric and spectroscopic redshifts, and 3) accurate knowledge of the observable – mass relation down to the scale of groups of galaxies. With  $10^5$  clusters from an average all-sky exposure of 1.6 ks (with at least 50 photons each), eROSITA will give marginalized, one-dimensional,  $1\sigma$  errors of  $\Delta\sigma_8 = 0.008$  ( $\sim 1\%$ ),  $\Delta\Omega_m = 0.006$  (2.2%),  $\Delta w_0 = 0.07$  (7%), and  $\Delta w_a = 0.27$  (optimistic scenario), in combination with and largely improving upon Planck data from the temperature anisotropies of the Cosmic Microwave Background.