The correlation function of galaxy clusters. Measuring the equation of state w and the scatter in the mass richness relation

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Abstract

Cluster of galaxies are becoming a powerful tool for constraining the cosmological parameters. The measurement of cosmological parameters by counting the numbers of clusters as a function of redshift is a key project of the Dark Energy Survey. The use of clusters as a cosmological probe depends on our understanding of the mass of the clusters. We present a method to constrain the equation of the state w and the scatter in the mass richness relation by making use of the bias measured in the correlation function. First we use this method to constrain only the scatter for the maxBCG sample of optically selected clusters in the SDSS data. Finally, we also present the potential to measure both parameters with this method using the dark matter halos cosmological simulations with a DES volumen.