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Photometric Properties and Stellar Masses in Dark Energy Survey Galaxy Clusters

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We present the results of a study of the properties of clusters, selected using the RedMaPPer technique, from the Dark Energy Survey Year 1 data, which cover an area of nearly 2000 square degrees on the sky. We calculate cluster membership probabilities and use a Gaussian mixture model method to characterize the red sequence and blue cloud components of our clusters, and we will present our results on properties such as red sequence peak color, slope, and width, and cluster blue fraction, in particular as functions of redshift. Moreover, we introduce a new cluster stellar mass observable, mu*, and will show that it works as a reliable mass proxy for cosmology by comparing our predictions to X-ray measurements. Finally, we will show our results for the redshift evolution of the stellar masses and star formation rates in our cluster member galaxies.

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