

Abstract Submitted
for the APR17 Meeting of
The American Physical Society

Photometric Properties of Galaxy Clusters in the Dark Energy Survey BRIAN WELCH, University of Chicago, DARK ENERGY SURVEY COLLABORATION — Galaxy clusters have been observed to have a "red sequence" of tightly correlated galaxies in color-magnitude space. Many cluster finding algorithms rely on the red sequence to identify clusters and to determine their member galaxies. However, that approach may introduce unwanted selection effects. To address this issue, we have developed a probabilistic cluster membership assignment technique with less emphasis on the red sequence. We found that this technique works well when applied to simulations as well as real data. Our sample of clusters are selected by the redmapper algorithm in the Dark Energy Survey (DES) year-1 data set, and cover a redshift range of $0.1 \leq z \leq 0.95$. We use our members list to make measurements of the cluster masses and radii, as well as the red sequence parameters and red-to-blue member fractions of these clusters. This is the largest study of its kind to date. Our results will inform assumptions used in cluster selection and studies in the future.

Brian Welch
University of Chicago

Date submitted: 30 Sep 2016

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