

Abstract Submitted
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Galaxy Properties and Substructure in the Cluster Abell 160

CRAIG KOONTZ, JASON PINKNEY, Ohio Northern University — We have developed a procedure for building a large catalog of cluster galaxies and their photometric properties as measured with CCDs. Our first case, Abell 160, is relatively nearby and redshifts exist for its brightest galaxies. We have mosaiced this cluster in R and V filters using a CCD imager on the 1.3-meter McGraw-Hill telescope. We fitted a world coordinate system to the images using the software “WCStools,” then used “Source Extractor” to extract sources from the images. We have created software for merging catalogs in such a way as to avoid double counting, to reject cosmic rays, and to combine redundant measurements. The software also corrects magnitude differences by comparing the mean difference and adding this to each individual catalog before merging it to a master catalog. The measured properties included in this study were magnitude, ellipticity, position angle, size, and color (V-R). We investigate the efficacy of our separation of galaxies and stars and find that it begins breaking down around $R=19.0$. We divide our master catalog into several subsamples for substructure analysis. For one subsample, we attempt to separate cluster members from foreground and background galaxies using the color-magnitude relation. We compare the results of substructure diagnostics for the subsamples. In future work, we will examine correlation of substructure with galaxy properties (especially color, size and morphology).

Jason Pinkney
Ohio Northern University

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