

Abstract Submitted
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Group Halo Mass and Galactic Disk Evolution in the RESOLVE Survey¹ KATE KUSHNER, NCSSM, SHEILA KANNAPPAN, UNC-Chapel Hill, KATHLEEN ECKERT, Univ. of Pennsylvania, DAVID STARK, Kavli IPMU, JONATHAN BENNETT, NCSSM, RESOLVE COLLABORATION — Groups and clusters of galaxies are surrounded by dark matter halos whose masses may be related to disk formation in member galaxies. Using galaxies included in the RESOLVE survey, we examine the relationships between group halo mass and characteristics of the galaxies that serve as proxies for disk formation. Among these is the (g-r) color gradient, a measure of the blue centeredness of galaxies. The (g-r) color gradient indicates that a galaxy is bluer (redder) -centered when its center emits more blue (red) light than its edges. We find that group halo mass and the (g-r) color gradient display a correlation such that galaxies in higher halo masses are redder-centered than those found in lower halo masses. Since the majority of RESOLVE galaxies are more red-centered than blue-centered, the majority of these galaxies have a higher proportion of blue stars in their outer regions, which, in conjunction with blue absolute disk color, may suggest the presence of star-forming disks. Only at small halo masses does a minority of bluer-centered galaxies emerge, perhaps as a result of interactions between galaxies or fresh gas accretion. We find that the gas mass to stellar mass ratio displays a negative correlation with halo mass, indicating that galaxies found in groups with smaller halo masses ($\sim 10^{11.5}$ solar masses) are more strongly gas-dominated and are likely to form disks. We discuss the possible implications of our (g-r) color gradient and gas mass to stellar mass ratio results for disk formation.

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Jonathan Bennett
NC School of Science and Mathematics

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