

Abstract Submitted
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The Role of Clusters and Groups in Stopping Gas Accretion onto Galaxies GREGORY RUDNICK, University of Kansas, PASCALE JABLONKA, École Polytechnique Fédérale de Lausanne, Switzerland, JOHN MOUSTAKAS, Siena College — Despite decades of work, it is still unclear whether a galaxy’s properties are affected by environment or whether they are determined solely by the galaxy’s mass. I will present new results that shed light on the key question of how the gas supplies of galaxies may be altered by dense environments. We use a stellar mass selected sample consisting of hundreds of cluster, group, and field galaxies at $0.4 < z < 0.8$ with multi-wavelength imaging and deep spectroscopy. We identify galaxies whose light is dominated by old stellar populations and, contrary to expectations, we find that these “old” galaxies at intermediate redshift have a high likelihood of hosting weak [OII] emission. In contrast, analogously old galaxies in clusters and groups are significantly less likely to have activity. Our results imply that the cluster and group environments are effective at either stripping out gas from deep in the potential wells of galaxies or at cutting off their fuel supply of fresh new gas. Our work is possible because we probe a large number of clusters (not available in DEEP2 or COSMOS) as well as coeval group and field galaxies, and use deep Spitzer observations to search for dust-obscured star formation.

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