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Presentation Requested: oral

Category: Environment, Large Scale Structure and Galaxy Evolution

Question: Other

The Effects of Environment in $z = 1-2$ Galaxy Clusters

Many outstanding questions remain about the role of the most extreme environments in galaxy evolution. In recent work, our group has shown that star formation in cluster galaxies increases with redshift reaching field levels at $z \gtrsim 1.4$, identifying a pivotal transition epoch in the evolution of galaxy clusters. Here we present a detailed analysis of 11 galaxy clusters that span the epoch from $z = 1 - 1.8$. Using deep *Herschel* PACS imaging, we quantify the dust-obscured star formation (SF) in cluster galaxies as a function of cluster-centric radius, halo mass, and in relation to other galaxy properties such as stellar mass and AGN. For a subset of cluster galaxies with spectroscopic redshifts, we quantify the full optical to far-infrared spectral energy distributions as well as perform a comparison between dust-obscured and unobscured SF. We additionally present SCUBA-2 $850\mu\text{m}$ imaging of the most massive cluster known at high redshift ($z > 1.4$) and derive dust temperatures and total ISM masses of cluster galaxies. This detailed study of cluster galaxies across this transition epoch provides important constraints on environmental drivers of galaxy evolution.