Molecular Gas, Dust, and Star Formation in Galaxies
Proceedings IAU Symposium No. 292, 2012
T. Wong & J. Ott, eds.

doi:10.1017/S1743921313001634

Multi-wavelength Studies of Cluster Star Forming Galaxies at z∼0.54

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Abstract. We carry out a multi-wavelength analysis of star forming galaxies in the massive cluster MS0451.6-0305 at z∼0.54 to shed light on the evolution of the far-infrared-radio relationship in rich clusters. We have performed Spectral Energy Distribution (SED) fitting of IRAC 3.6μ, IRAC 4.5μ and MIPS 24μ photometry from *Spitzer* to derive the total infrared bolometric luminosity of spectroscopically confirmed cluster members with radio counterparts. The radio flux densities were measured from deep Very Large Array (VLA) radio continuum observations. The relationship between the infrared and radio luminosities for our sources show the strong correlation found between these two parameters for star forming galaxies. The far-infrared to radio luminosity ratio ($q_{\rm IR}$) values measured for these sources are comparable to those measured in low redshift clusters and indicative of an excess of radio emission.

Keywords. galaxies: clusters — galaxies: evolution — infrared: galaxies — radio continuum: galaxies

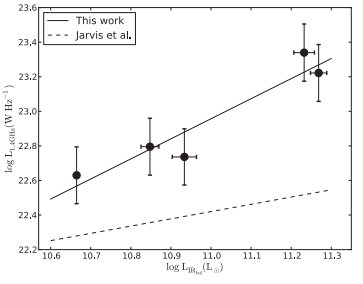

Figure 1. Far-infrared bolometric luminosity vs. rest frame radio luminosity at 1.4GHz for a MIPS 24μ limited sample. This figure shows the infrared radio correlation for a sample of confirmed cluster star forming galaxies. Our preliminary results show the strong correlation between these two measurements (solid line) and an offset from the existing field relationship from Jarvis *et al.* (2010) (dashed line). The median value of $q_{\rm IR}$ = 2.05 ±0.15 seems to be in agreement with previous work done in low redshift clusters (e.g., Reddy & Yun 2004).

References

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