

Molecular gas in star-forming galaxies of the intermediate redshift cluster Zw Cl0024.

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Abstract

We present preliminary results from a survey of cold gas in an intermediate-redshift cluster, Zw Cl0024.1+1652 at $z = 0.395$, using the EMIR receiver at the IRAM-30m telescope, Pico Veleta observatory, Spain. We observed the CO(1-0) and CO(2-1) transitions in a sample of seven star-forming galaxies drawn out of the GLACE catalogue of $H\alpha + [NII]$ emission-line galaxies. These galaxies have been chosen to be bright in the far-IR and to span a wide range of local densities/cluster-centric distances. We have derived the L'_{CO} luminosity (tracing the amount of cold gas available for star formation) and combined these data with the total IR luminosity L_{TIR} values (tracing the star formation rate, SFR) derived by our team, and with additional CO and FIR data from literature to study how the amount of cold gas in an intermediate-redshift cluster relates to the SFR and cluster-centric distance. The results suggest that, at a given SFR, the reservoir of cold gas is smaller in cluster galaxies. Furthermore, there are also hints that the amount of cold gas increases with the cluster-centric distance, hence pointing to an environmental dependency.

My poster is available at https://zenodo.org/record/7051415#.Y7_uGezMKek