

A Multiwavelength View of Enhanced Star-Formation in Active Galaxies



Cowley, M.J^{1,2}, Spitler, L^{1,2}, et al., MNRAS 457, 629–641, arXiv: 1601.02016

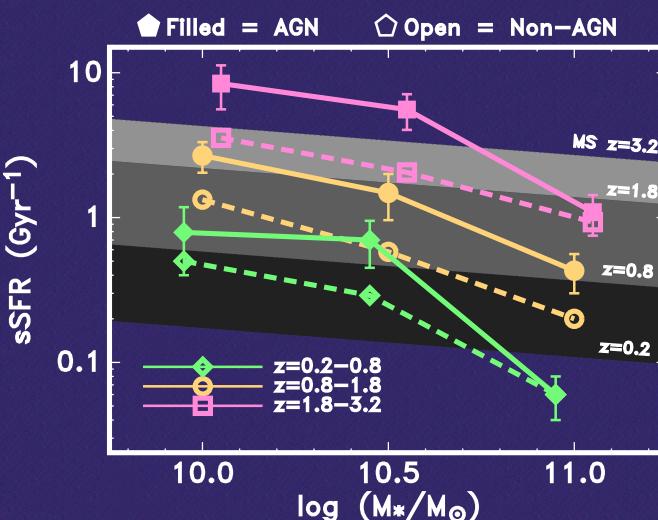
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1 Overview

We select a diverse sample of active galaxies at radio, X-ray and infrared wavelengths in order to investigate the empirical connection between AGN activity and star-formation. When compared to a mass-matched sample of non-active galaxies over $z = 0.2 - 3.2$, we find the star-formation activity (mean sSFR) of active galaxies to be elevated by ~ 0.34 dex.

2 Approach

Active galaxies are drawn from the ZFOURGE survey, which affords us high quality redshifts and stellar population properties, as well as access to lower mass, high redshift galaxies (down to $\log M = 9.75$ out to $z = 3.2$). We use deep *Herschel* far-IR data to derive star-formation rates and maximise completeness by limiting our sample by mass, redshift and AGN luminosity.



3 Results

The star-formation activity (mean sSFR) of active galaxies tends to be elevated over inactive galaxies. This elevation is seen across all redshifts, but is less pronounced at higher stellar masses (LHS figure). The exception to this elevation is low redshift, **radio** AGN (RHS figure), which favour more massive, quenched hosts. For **X-ray** AGN hosts, star-formation activity is fairly consistent with inactive galaxies, while for **infrared** AGN hosts, the elevation is explicit, with a mean sSFR up to ~ 5 times higher. See our article for more discussion!

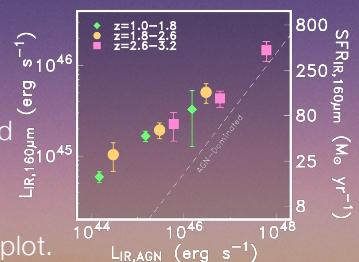


4 Future Work

We investigate the elevation of star-formation activity in infrared AGN hosts by inspecting the dependence of star-formation on AGN luminosity. Rather than focusing on X-ray emission as a measure of bolometric AGN luminosity, we develop a novel technique to isolate and measure the nuclear contribution to the observed

SED of IR-bright AGN.

A sneak peek at initial results is given in the plot.



Questions or comments?

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ZFIRE

ZFOURGE
FourStar Galaxy Evolution Survey