

Dissecting EELs (Extreme Emission Line Sources) across cosmic history

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Abstract

Extreme Emission Line Sources (EELs) are observationally identified by their strong nebular emission (either spectroscopically or through its effect on their broadband colours) arising from either an intense burst of star formation (the majority of cases) or AGN activity. The star forming EELs are amongst the most actively star forming galaxies in the local Universe, with typical specific SFRs: $1-10 \text{ Gyr}^{-1}$ well above the local main-sequence. Both the specific SFRs and SFR surface densities of the EELs are comparable to both local ULIRGs and typical very-high redshift ($z > 4$) star forming galaxies (potentially making them a useful analogue population).

Using various techniques we have identified samples of EELs at both low (from the Galaxy and Mass Assembly survey) and high redshift ($z \sim 2$) allowing us to probe their evolving demographics. For the low-redshift sample we have access to a wealth of multi wavelength observations including optical spectroscopy and UV to far-IR broadband photometry from GALEX, VST, SDSS, VISTA, *WISE*, and *Herschel*. This extensive range of multi-wavelength observations allow us to robustly determine a range of physical properties including stellar masses, intrinsic star formation rates, metallicities, dust masses, and structure.