

Using Local Analogues to explore Star Formation in the Distant Universe

Elizabeth Stanway¹, Stephanie Greis¹ & Luke Davies²

¹ *University of Warwick, UK*

² *ICRAR, University of Western Australia, Australia*

Abstract

Star formation has now been observed to the highest redshifts. Candidate star forming galaxies have been identified which emitted their light barely half a gigayear after the Big Bang. By the time the Universe was a billion old, the surface density (and luminosity) of star-forming galaxies was sufficiently high that we are able to build up statistical samples for study and analysis.

Such rest-UV-selected samples provide valuable insight into the Universe at early times, but are nonetheless only part of a larger picture. Understanding the nature of star formation at early times requires inferences and assumptions about their wider properties, extrapolated from relatively little data. Inevitably, these extrapolations are based on studies of similar, small, star-forming galaxies in the more local Universe, including so-called ‘Lyman Break Analogues’ and more local Gamma-Ray burst host galaxies (which can be used as models for more distant burst hosts and for the star forming population more generally). I will discuss recent studies at both high and low redshifts, and the degree to which study of local analogue samples can be developed or improved to provide reliable data or a good model for conditions in distant ($z \sim 5 - 8$) star forming galaxies.