

Observations of High Redshift Galaxies

R. J. Bouwens¹

¹ *Leiden University*

Abstract

Over the last few years, enormous progress has been made in the study of galaxies at very high redshifts, thanks to the extraordinary capabilities of the HST WFC3/IR camera, the Spitzer/IRAC instrument, and both ultra-deep and wide areas programs. Already, more than 800 probable galaxies are known at $z \geq 6$, with >20 credible candidate galaxies at $z \sim 9-11$. The galaxy with the highest redshift confirmation through spectroscopy is at $z \sim 8$, but new HST-grism programs promise to extend such confirmations to $z \sim 11$. With current samples, early galaxy build-up is increasingly well understood on many different fronts, including UV luminosities, stellar masses, sizes, and UV colors. One potentially surprising development has been the quantification of the fluxes in various key nebular lines in the mid-IR, like H α and [OIII], as such lines can be useful for both providing tight constraints on the redshift and constraining the star formation rates in galaxies. In my introductory presentation, I attempt both to set the context and to provide an overview of the exciting work now being done on galaxies in the early universe.