

Observational signatures of an evolving interstellar medium in high redshift galaxies

Alexandra Pope¹

¹ *University of Massachusetts Amherst*

Abstract

The prominent peak in the history of star formation and black hole accretion at $z \sim 1-3$ suggests strong evolution in the mechanisms that grow stars and black holes in galaxies. Multi-wavelength observations of the interstellar medium (ISM) can quantify both the energy balance between star formation and active galactic nuclei (AGN) activity, and constrain the composition and conditions of the gas and dust available to form new stars. In order to measure and understand the evolution of the ISM in high redshift galaxies, we combine diagnostics from mid-IR spectroscopy, far-IR/(sub)mm continuum and CO molecular lines. We present new observations from the Large Millimeter Telescope of the gas and dust in distant galaxies. We quantify the evolution in the ISM with redshift and as an AGN grows more luminous within a star forming galaxy in order to understand what is driving the peak epoch of galaxy evolution.