X26a Dust at high redshift; an observational perspective

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Forming a complete picture of star-formation through cosmic time is one of the main challenges of galaxy evolution studies. Our current understanding of star-formation at high redshifts ($z > 7$) is mostly formed through rest-frame ultraviolet (UV) observations of Lyman-Break Galaxies (LBGs), which directly probe their stellar light and ionized hydrogen. Complementary to this, the Atacama Large Millimeter/submillimeter Array (ALMA) has detected UV-selected high-redshift galaxies in sub-mm colours, tracing dust-obscured regions and far-infrared spectral lines (e.g. [OIII] at 88 μm and [CII] at 158 μm) out to redshifts around 8 to 9.

I will report on what we have learned about a few of these high redshift sources in the sub-mm, all within the 'cosmic dawn', using observations of both spectral lines and dust emission. By comparing the sources *coherently* to one-another, and to models (hydrodynamical simulations and semi-analytical models), I aim to show the current limits of our understanding and how intrinsic biases shape our view of the high-z Universe. Here, I will place a focus on where JWST and further ALMA observations can help us understand these sources at 'cosmic dawn'.