

## ALMA2019: Science Results and Cross-Facility Synergies



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# Massive Galaxy Formation in the Reionization Era

*Friday, October 18, 2019 12:05 PM (15 minutes)*

Contributed talk

Abstract:

SPT0311-58 is a system of interacting galaxies at  $z=6.9$ , found via its millimeter-wave dust emission in the South Pole Telescope sky survey. Unlike most galaxies known in this era, which are relatively low-mass and dust-poor star forming galaxies, the constituents of this system are massive objects with significant dust and gas content. ALMA has provided an exquisitely detailed picture of this system, revealing two main galaxies separated by just 8kpc and 500 km/s. These measurements have shown that the most massive galaxy in SPT0311-58 has the highest dust, gas, and dynamical masses of any galaxy known at  $z>6$ , including quasar hosts, and the pair resides in one of the largest halos that can exist at  $z\sim 7$ . I will present an overview of our imaging of this system in dust continuum, atomic, and molecular lines, as well as rest-UV imaging, which reveal the complex process of galaxy assembly at this early point of cosmic history in great detail.

**Presenter:** Dr MARRONE, Daniel

**Session Classification:** Cosmology