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**Presentation Requested:** oral  
**Category:** Environment, Large Scale Structure and Galaxy Evolution  
**Question:** How has (or how will) ALMA (with other telescopes) help us better understand the impact of the environment on galaxy evolution? Can ALMA or one of the other new facilities detect the gas in the large scale structure, outside of galaxies? What can we learn from dwarf galaxies or galaxies in clusters and groups in the nearby Universe using ALMA + other facilities & how has this helped us understand galaxy evolution at higher redshifts?

**Shock-excited gas in Dense Group Environments**

We describe the confluence of Spitzer, Herschel and Millimeter observations of galaxies (CARMA and PdB interferometers) in compact environments locally, that suggest that large-scale shocks and turbulence can heat molecular gas over large-scales. Starting with several examples of both collisionally driven and AGN-driven turbulent systems boosting rotational H2, [CII]157, [OI]63 micron, and CO emission on large group-wide scales, we extend this concept to higher redshift galaxies observable with facilities like ALMA and the JVLA. The talk attempts to connect what we known of how turbulence is driven into host galaxies from either AGN or direct gas-on-gas collisions, to that of proto-galaxies or groups at high-z where turbulent heating might trace gas which is not yet heated by young stars.