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**Presentation Requested: oral**

**Category: Evolution of the Interstellar Medium and Star formation over Cosmic Time**

**Question:** Is there a common Schmidt-Kennicutt law at all redshifts and all scales? How is this "law" affected by different measurement limitations or conversion factors from tracer molecules or emission / absorption lines to amounts of gas and SFR?

**Linear SFR – dense gas correlations from Galactic cores to high-z SF galaxies**

The massive dense cores in giant molecular clouds/complexes are the sites of the active star formation. Here, we show that the star formation rate (SFR) and a variety of dense gas tracers (HCN, CS, high-J CS, high-J CO, and even H<sub>2</sub>O) are all linearly correlated for both the Galactic dense cores in our Milky Way and star-forming galaxies near and far. This has immediate implications on the modes of star formation in galaxies and suggests that dense cores are the basic units contributing to the SFR and SFR might depend linearly upon the mass of dense molecular gas (the star formation law). These ground-based observations of last decade and recent Herschel results highlight what ALMA will deliver in near future on the studies of star formation law at all redshifts and all scales.