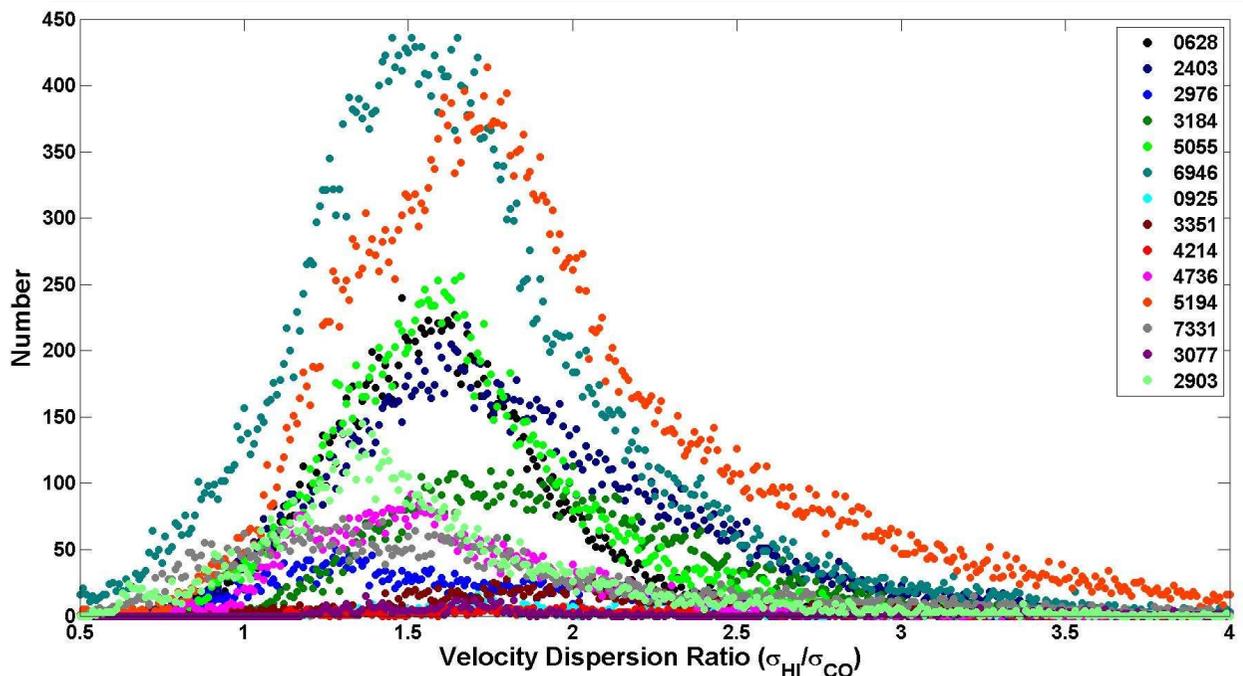


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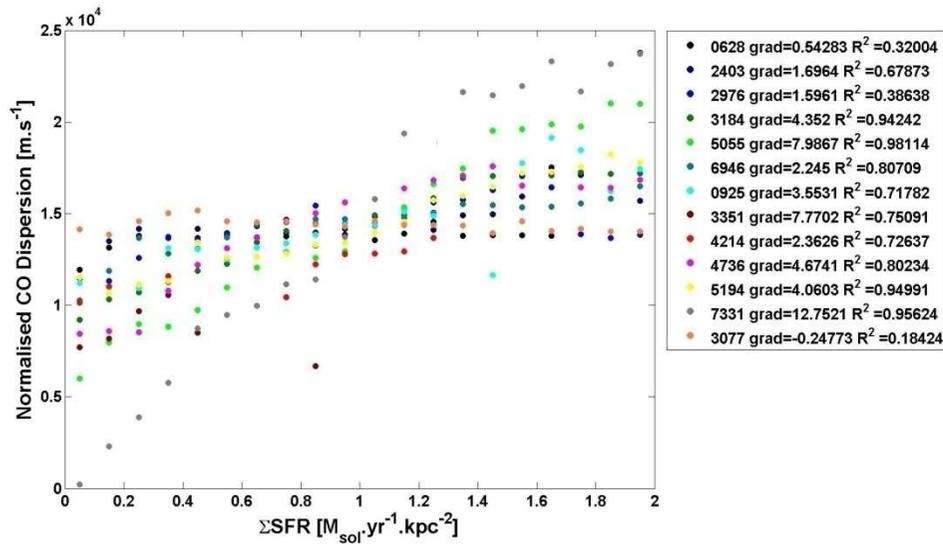
# HI and CO Velocity dispersions in nearby galaxies



## Preliminary Results

Figure 1 : Histogram of the HI/CO Dispersion ratio for the 14 galaxies in the sample; colour coded by galaxy

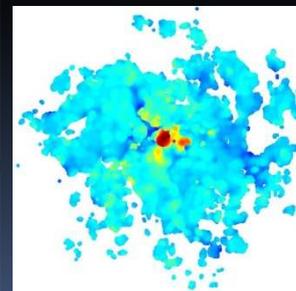
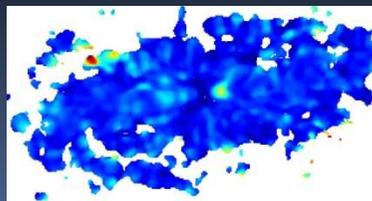
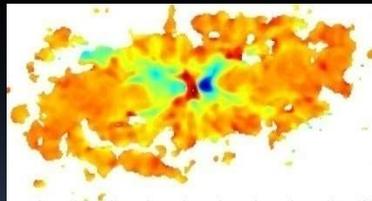
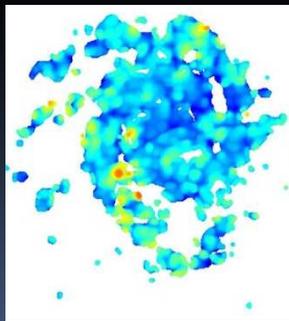
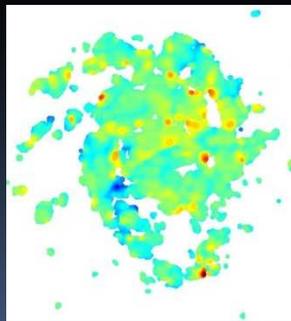
- ❖ Importance : SFR, Turbulence, [Dynamics]
- ❖ Performed a pixel-by-pixel analysis of the HI and CO velocity dispersions in 14 THINGS and HERACLES galaxies. Sampled CO and HI dispersions  $> 5.2 \text{ km.s}^{-1}$  (due to velocity resolution of data).
- ❖ Fitted mean between galaxies (log Normal):
  - ❖ Dispersion Difference :  $7.7 \pm 2.3 \text{ km.s}^{-1}$  HI-CO
  - ❖ (inclination-corrected :  $4.8 \pm 2.0 \text{ km.s}^{-1}$ )
- ❖ Dispersion Ratio :  $1.8 \pm 0.22$  HI/CO



## Preliminary Results

Figure 2 : Plot of the Average CO dispersion per value of star formation rate density for 13 galaxies in the sample. Gradients and R<sup>2</sup> of fits for every galaxy noted in the legend.

- ❖ Dispersion Difference is not smooth across galaxies and varies across galaxies.
- ❖ Average CO dispersion linearly related to SFR Density ( $0-2M_{\text{sol}}\cdot\text{yr}^{-1}\cdot\text{kpc}^{-2}$ ), becomes non-linear at high SFR density and relation is not clear for  $0-0.5M_{\text{sol}}\cdot\text{yr}^{-1}\cdot\text{kpc}^{-2}$ ; large variation of gradients between galaxies.
- ❖ Tighter correlation between CO and SFR than with HI.



+Spitzer 24 $\mu\text{m}$   
+ GALEX FUV

