

Introduction

This is the introduction. Keres et al. (2003)

Methods

COLD GASS Results

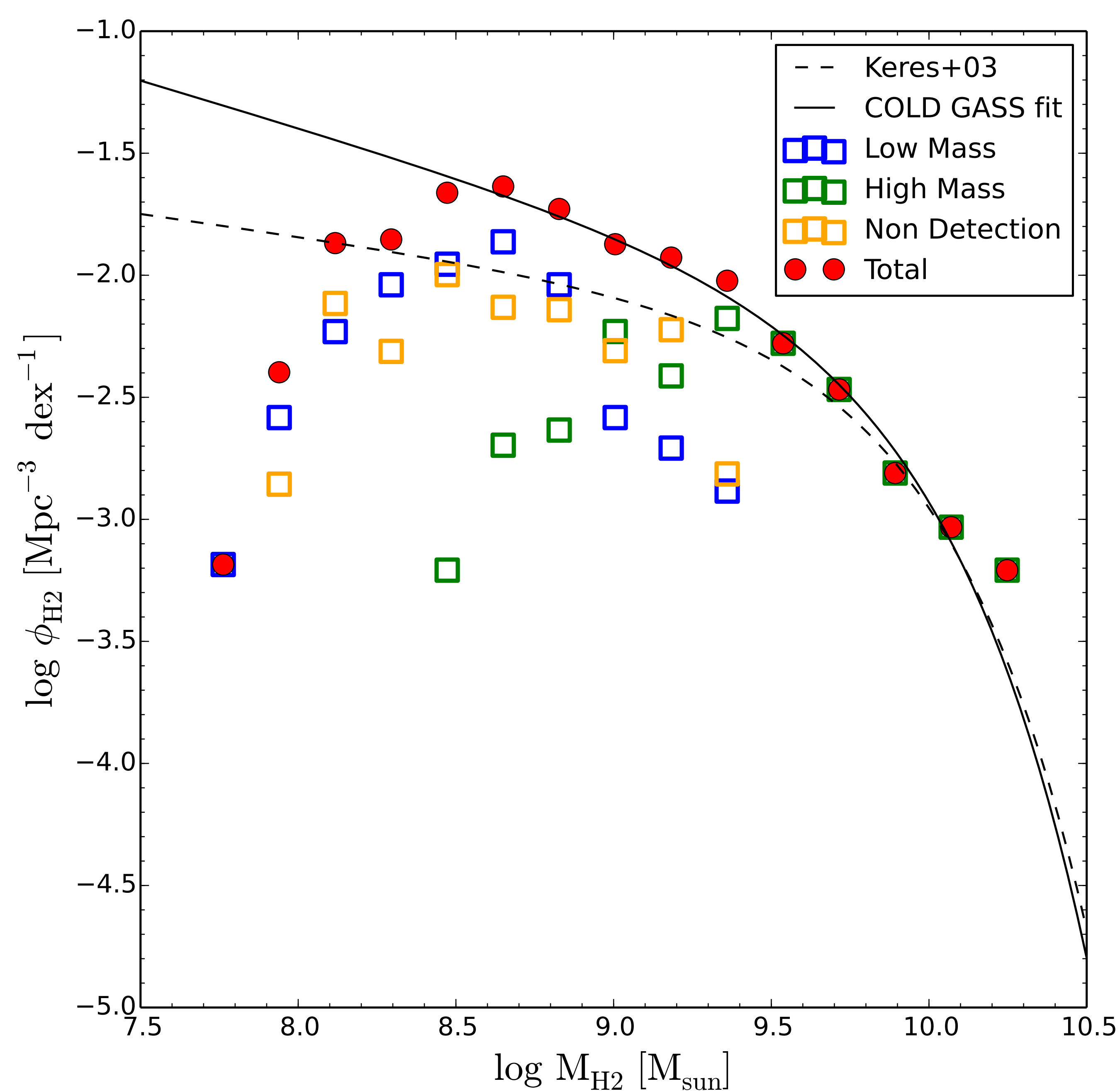


Figure 1 : Molecular gas mass function (M_{H_2}). The blue, green and orange squares represent the low mass, high mass and non-detections from the COLD GASS survey and the red circles show the total contribution from all galaxies in the survey. The dashed line is the best fit from Keres et al. (2003) and the solid line is the best fit to the COLD GASS data.

$$\Omega_{H_2} = 3.1 \cdot 10^7 M_{\odot} \text{ Mpc}^{-3} \quad (1)$$

Scaling Relations

The second method makes use of tight scaling relations in the M_* – SFR plane

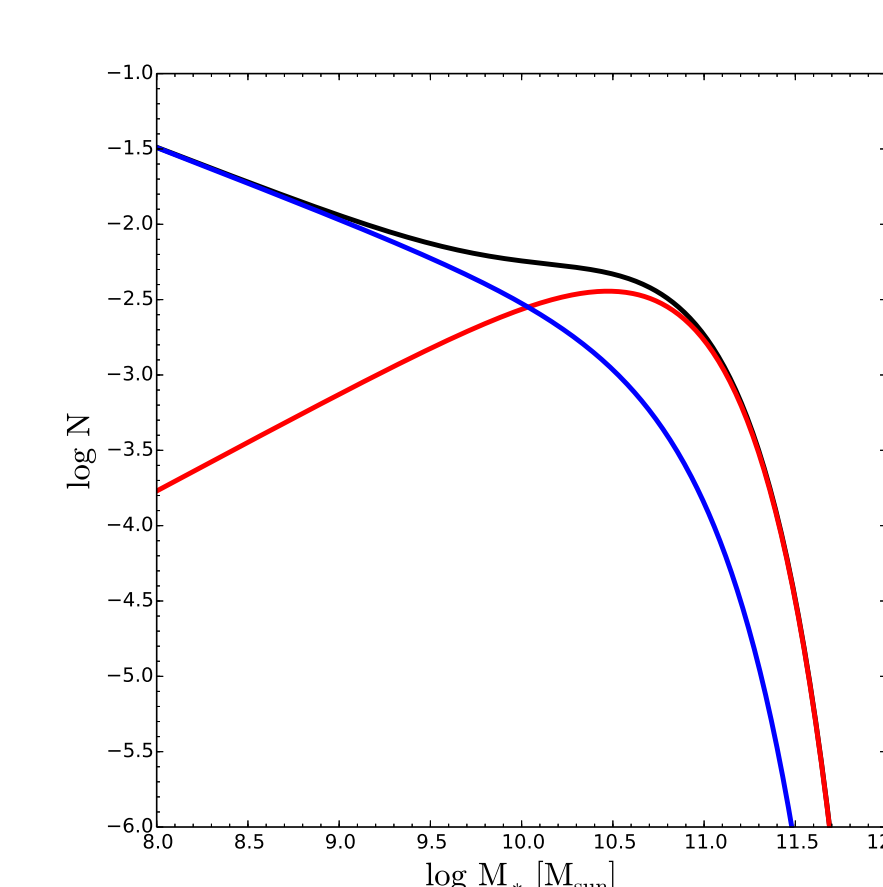


Figure 2 :

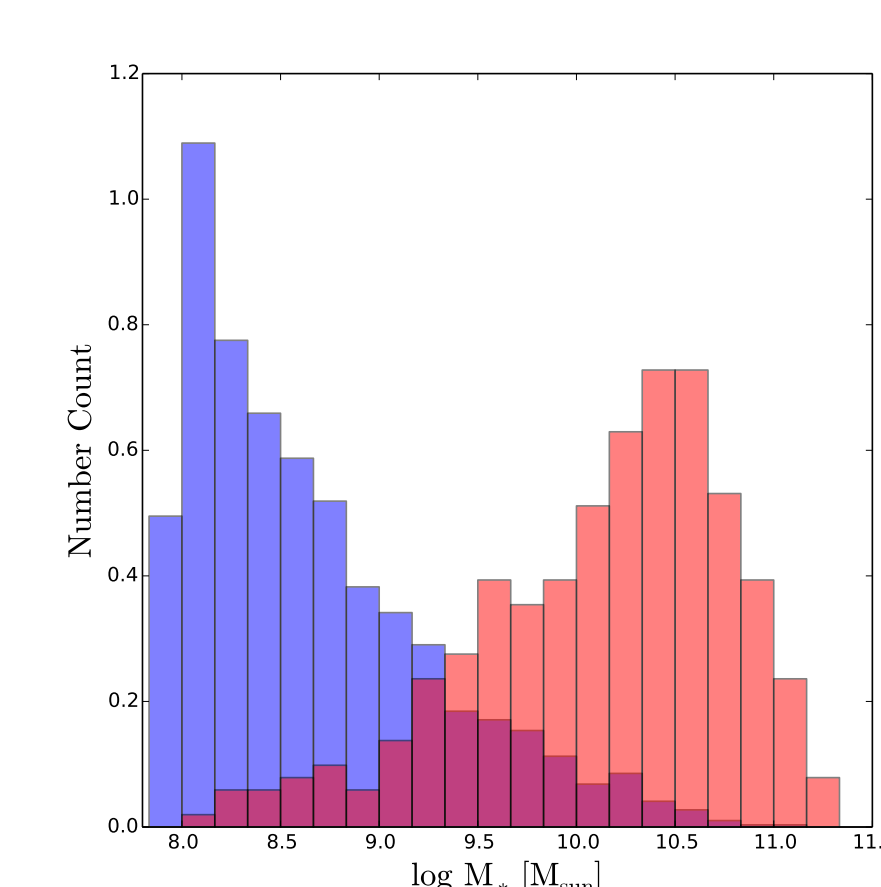


Figure 3 :

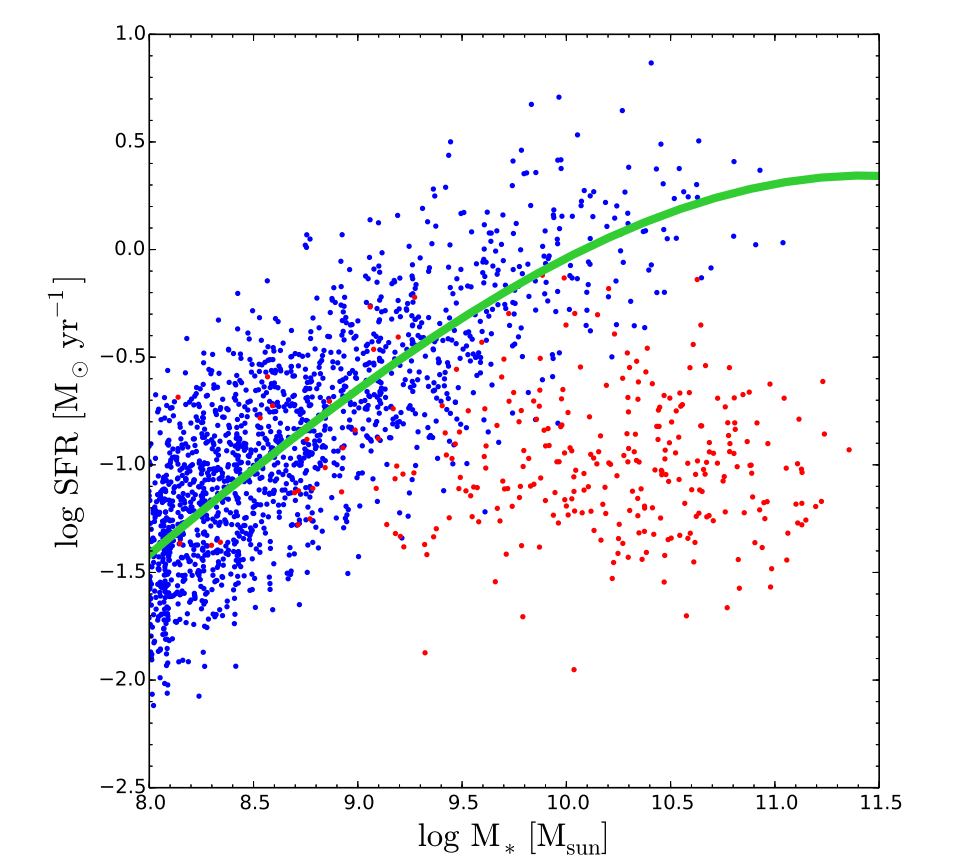


Figure 4 : Saintonge et al. (2016)

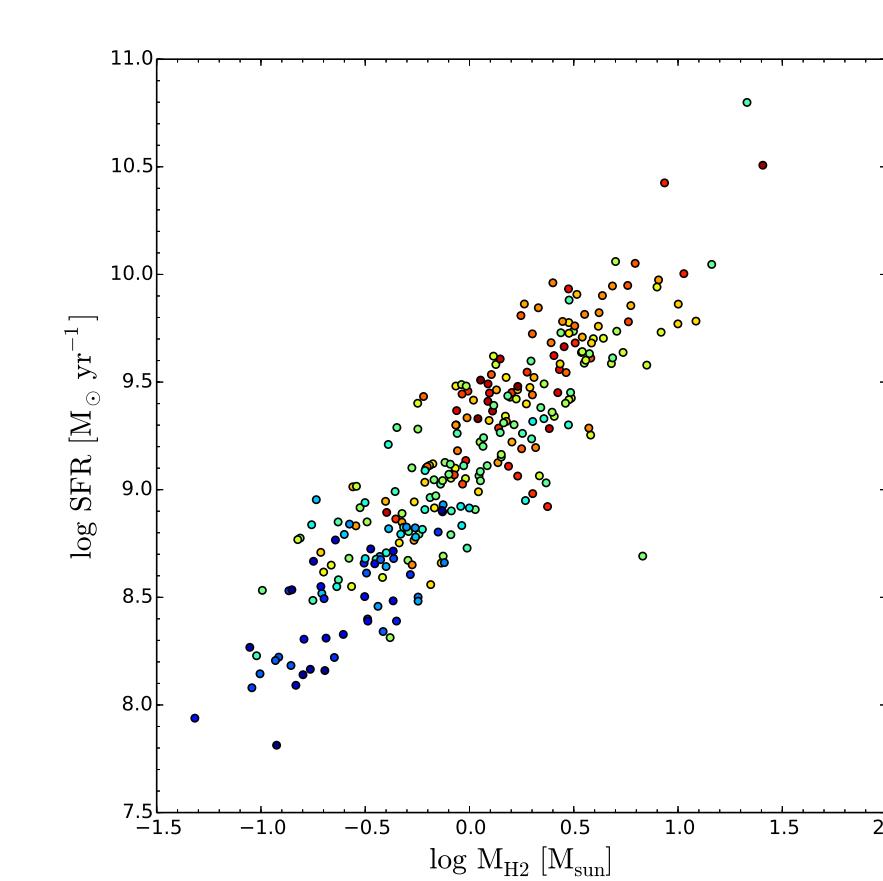


Figure 5 :

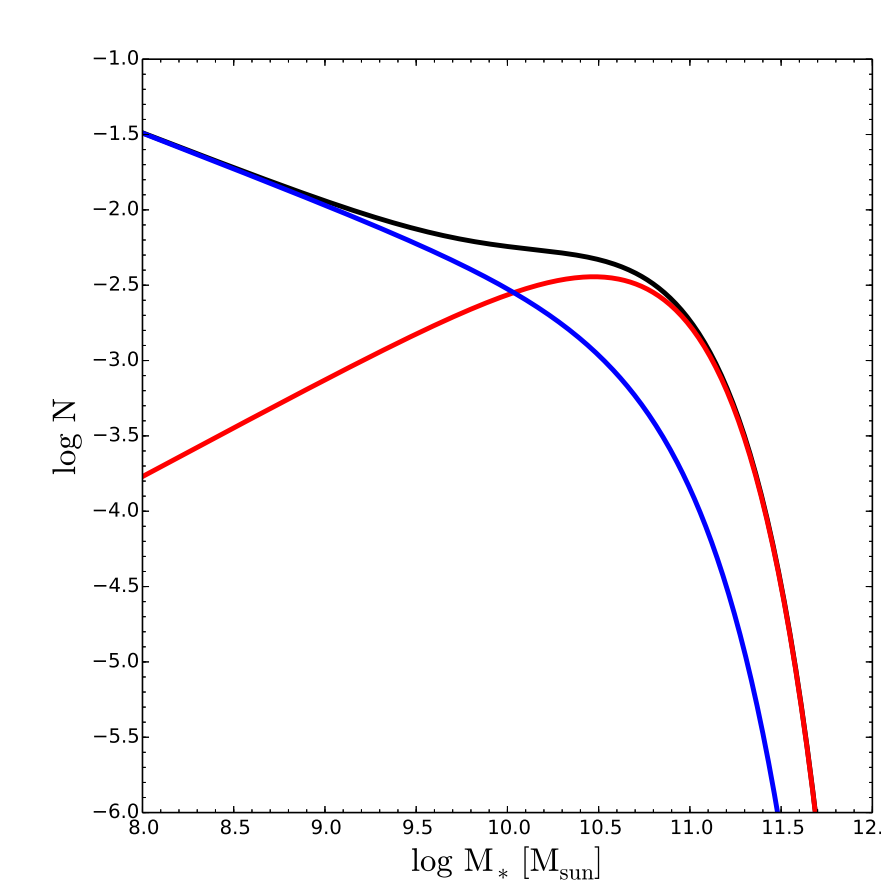


Figure 6 :

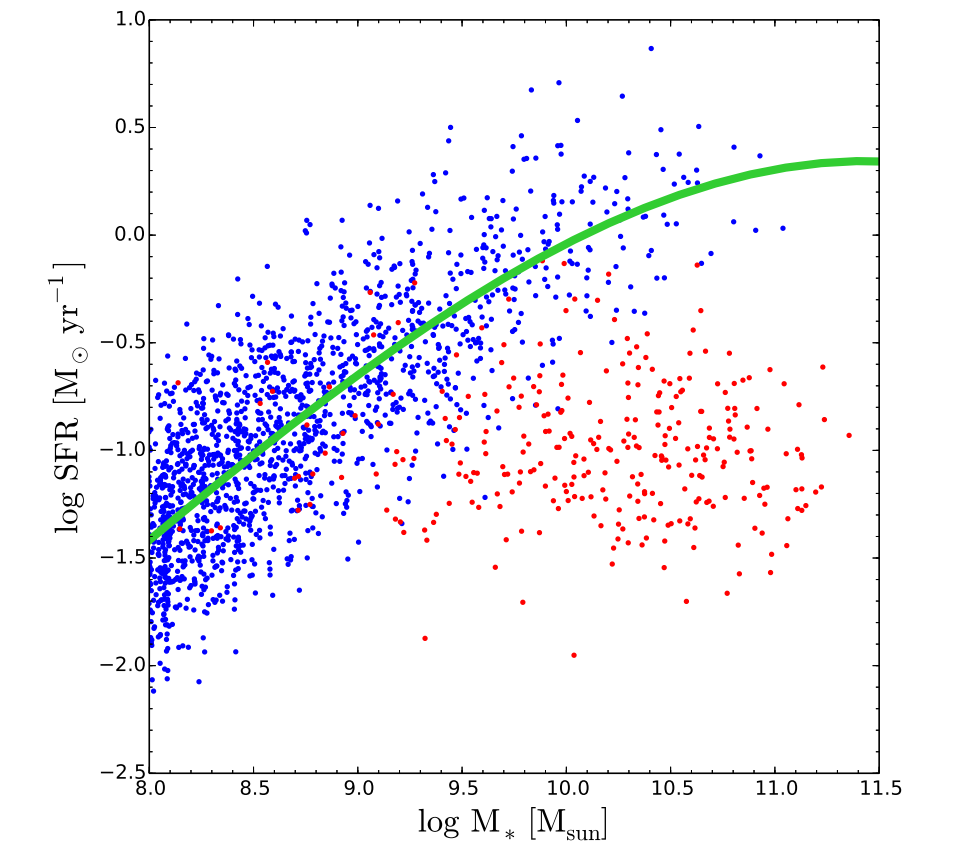


Figure 7 : Saintonge et al. (2016)

References

Keres, D., Yun, M. S. & Young, J. (2003), 'CO luminosity functions for far-infrared-and B-band-selected galaxies and the first estimate for Ω_{HI+H_2} ', *The Astrophysical Journal* **582**(2), 659.

Saintonge, A., Catinella, B., Cortese, L., Genzel, R., Giovanelli, R., Haynes, M. P., Kramer, C., Lutz, K. A., Schiminovich, D., Tacconi, L. J., Wuyts, S. & Accurso, G. (2016), 'Molecular and atomic gas along and across the main sequence of star-forming galaxies', *Preprint*.

Conclusions