Statistical Properties of Highly Luminous HII Regions in the Interacting Zone of the Antennae Galaxies, and Comparison with the Molecular Cloud Component

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Abstract. We have used the package CLOUDPROPS (Rosolowsky & Leroy 2008) in order to identify clouds, which are contained in data cubes of molecular/Hα line emission, and extract their properties. The molecular data cube is taken from the ALMA public archive and the ionized hydrogen data cube was obtained with the Fabry-Perot interferometer, GHαFaS, on the 4.2 m WHT in La Palma. In our study of the overlap region of the Antennae galaxies we have identified two populations of molecular clouds, above and below log $M/M_\odot$ = 6.75 (in agreement with Wei *et al.* 2012 who find the break in mass at log $M/M_\odot$ = 6.5) and two different populations of ionized gas clouds; the break in the luminosity occurs near log L = 37.6 (see Fig. 1). We have measured the masses, velocity dispersions and luminosities of the clouds, and derived relation between them for each population. Population II clouds (both molecular and ionized) tend to be located in the most luminous regions, while population I clouds can be found in the outskirts. This work will be published in Font *et al.* (2013).

Keywords. galaxies: interactions — galaxies: ISM — galaxies: kinematics and dynamics — galaxies: individual (NGC4038, NGC4039)
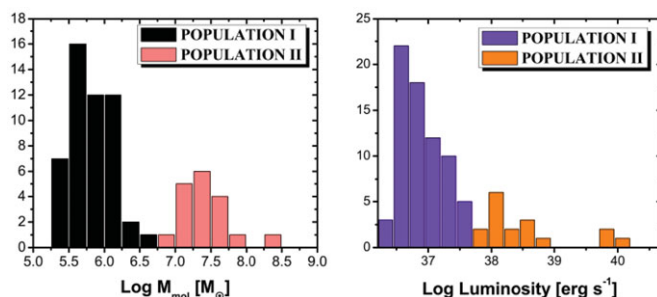
Figure 1. Bimodal distributions in mass for the molecular clouds,(break at log $M/M_\odot$ = 6.75) and in luminosity for the ionized gas clouds (with break at log L = 37.6)

References

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J. Font, J. E. Beckman, J. Zaragoza, S. Erroz-Ferrer & B. Garcia-Lorenzo 2013, *In preparation*