

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

Joan Font<sup>1,2</sup>, John E. Beckman<sup>1,2,3</sup>, Javier Zaragoza<sup>1,2</sup>  
Santi Erroz-Ferrer<sup>1,2</sup>, and Begoña Garcia-Lorenzo<sup>1,2</sup>

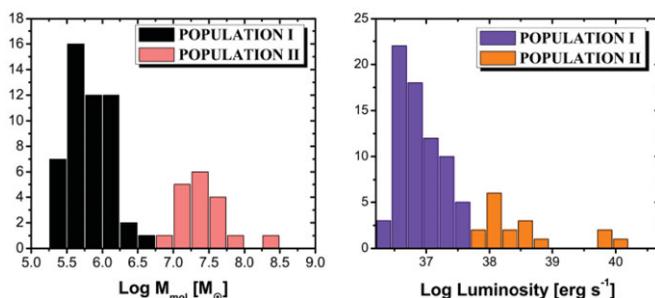
<sup>1</sup>Instituto de Astrofísica de Canarias, c/ Vía Láctea, s/n, E38205, La Laguna, Tenerife, Spain.  
email: jfont@iac.es, jeb@iac.es, jzc@iac.es, serroz@iac.es, bgarcia@iac.es

<sup>2</sup>Departamento de Astrofísica. Universidad de La Laguna, Tenerife, Spain.

<sup>3</sup>Consejo Superior de Investigaciones Científicas, Spain.

**Abstract.** We have used the package CLOUDPROPS (Rosolowsky & Leroy 2008) in order to identify clouds, which are contained in data cubes of molecular/H $\alpha$  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, GH $\alpha$ FaS, 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

- E. Rosolowsky & A. Leroy 2008, *PASP*, 118, 590.  
L. Wei, E. Keto & L. Ho 2012, *ApJ*, 750, 136.  
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