

Giant Molecular Associations in M51

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Abstract. We present a ¹²CO 2-1 map of M51 (Schuster *et al.* 2006) at 11'' resolution observed with HERA at the IRAM-30m telescope. The map covers the companion galaxy NGC5195 as well as the south-western arm out to 12 kpc. Using the IRAM-30m data and the clump finding procedure GAUSSCLUMPS (Stutzki *et al.* 1990), we obtain the masses, positions, peak temperatures and more intrinsic properties as i.e. deconvolved sizes of Giant Molecular Associations (GMAs) in M51 (Hitschfeld *et al.* 2007, in prep.).

1. Results

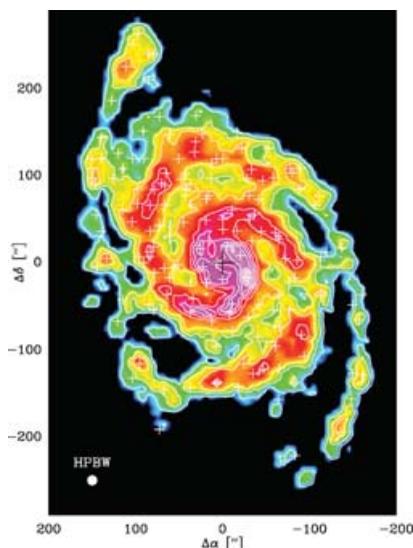


Fig. 1 Map of ¹²CO 2-1 integrated intensities [Kkms⁻¹] showing M51 and its companion galaxy NGC 5195 in the northeast. The image has a resolution of 11'' and is constructed from a masked moment calculation. The center positions of the 155 clumps produced by GAUSSCLUMPS are indicated by white crosses. The mass range for the fitted clumps is 4.9 10⁵M_⊙ to 1.2 10⁸M_⊙.

The HERA map of ¹²CO 2-1 (Fig.1) is the first CO map of M51 encompassing the companion galaxy as well as the south-western arm out to radii of ~ 12 kpc in a homogeneously sampled data set at linear scales of down to 450 pc. We presented a detailed study of the distribution of molecular gas, radial averages of molecular and atomic gas densities, local Schmidt law and gravitational stability in M51 in Schuster *et al.*(2006). We decompose the ¹²CO2-1 emission into three-dimensional Gaussian-shaped clumps using GAUSSCLUMPS and obtain i.e. positions, velocities and deconvolved sizes of the clumps.

References

- Schuster, K.-F., Kramer, C., Hitschfeld, M., Garcia-Burillo, S., & Mookerjee, B. 2006, *A&A* submitted
Stutzki, J. & Güsten, R. 1990, *ApJ* 356, 513