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Giant Molecular Associations in M51

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Abstract. We present a ^{12}CO 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

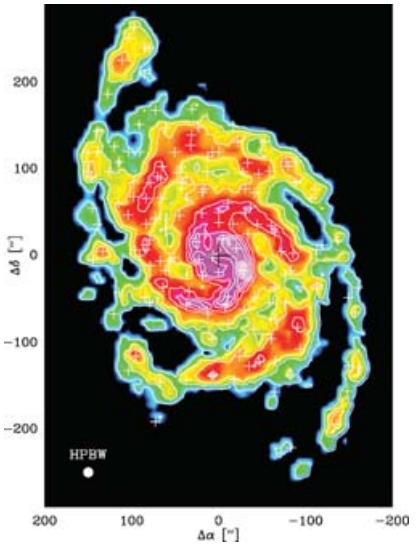

Fig. 1 Map of ^{12}CO 2–1 integrated intensities [Kkms^{-1}] showing M51 and its companion galaxy NGC 5195 in the north-east. The image has a resolution of 11″ and is constructed from a masked moment calculation. The center positions of the 155 clumps produced by GAUSSCLUMPS are indicated by white crosses. The mass range for the fitted clumps is $4.9\,10^5$M$_\odot$ to $1.2\,10^8$M$_\odot$.

The HERA map of ^{12}CO 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 ^{12}CO2-1 emission into three-dimensional Gaussian-shaped clumps using GAUSSCLUMPS and obtain i.e. positions, velocities and deconvolved sizes of the clumps.

References

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