

SUB-MM [C I] AND CO OBSERVATIONS OF MOLECULAR CLOUDS PRESUMABLY INTERACTING WITH THE G359.54+0.18 NONTHERMAL FILAMENTS

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We have investigated the physical properties of molecular clouds which are presumably interacting with the G359.54+0.18 Nonthermal Filaments and an associated H II region east of the filaments (Staguhn et al., 1996). The sub-mm spectra of $^{12}\text{CO}(3-2)$ were observed with the KOSMA 3 m telescope, while the 490 GHz [C I] $^3P_1 \rightarrow ^3P_0$ observations were made with the AST/RO 1.7 m sub-mm telescope. Fig. 1 shows channel maps of the integrated CO and [C I] line intensities in the velocity range of the recombination line observed towards the nearby H II region. This H II region is traced by the VLA 5 GHz continuum observations which are shown as contours in the central parts of the maps. The G359.54+0.18 Nonthermal Filaments, situated further to the west, appear to be morphologically associated with the H II region. The [C I] emission of the molecular cloud east of the filaments which is kinematically linked to the H II region is anticorrelated with the molecular line emission over a large angular extent. It is unlikely that the large morphological differences between [C I] and CO in this region can be explained exclusively by a high abundance of neutral carbon in the surface regions of dense molecular clumps, as is usually the case in PDR regions near the Sun.

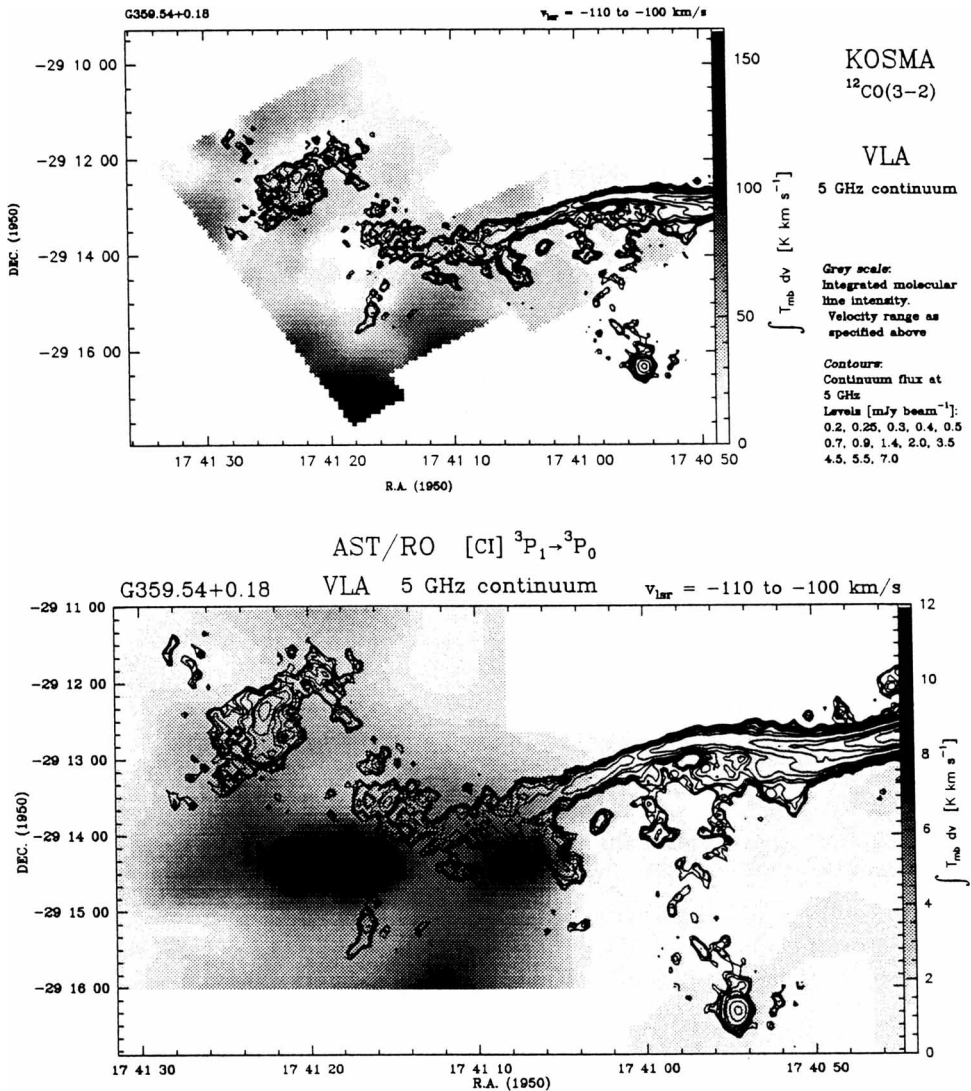


Figure 1. Channel maps showing *top*: the $^{12}\text{CO}(3-2)$ intensity, and *bottom* the $[\text{CI}] ^3\text{P}_1 \rightarrow ^3\text{P}_0$ intensity, both integrated between -110 and -100 km s^{-1} (grey scale), the velocity range of the observed recombination line in the nearby H II region. The H II region is traced by the 5 GHz continuum flux (contours) in the center of the maps.

References

- Staguhn, J., Stutzki, J., Yusef-Zadeh, F., Uchida, K.I., 1996, in *The Galactic Center*, ed. Roland Gredel, ASP Conf. Ser., Vol. 102, 447