

A SURVEY OF CO EMISSION FROM SOUTHERN SEYFERT GALAXIES

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We present first results of a survey for CO emission from a sample of southern Seyfert galaxies using the SEST. The sample consists of all galaxies from the Revised Shapley-Ames Catalog which are south of the celestial equator and are listed in Table 3 of the compilation of active galaxies by Veron-Cetty and Veron (*A Catalogue of Quasars and Active Nuclei - ESO Scientific Report No. 7, 1989*). During Dec 21- 31, 1989, we observed 30 galaxies and detected 6/8 Type 1 Seyferts, 7/14 Type 2 Seyferts, 0/2 LINERs, 4/4 unclassified Seyferts, and 2/2 galaxies with active nuclei, but not classified as Seyferts.

We find that the mean CO luminosity of Type 2 Seyfert galaxies (L_{CO}), as a fraction of the blue luminosity (L_B), is twice as large as for Type 1 Seyferts. The mean far-infrared luminosity of Type 2 Seyferts is also a factor 2 larger than that of Type 1's. These results are in good agreement with those from a similar study by Heckman et al. (1989, *Ap. J.*, 342, 735), and under the *assumption* that a higher CO luminosity corresponds to a greater molecular hydrogen mass and not simply a greater emissivity in the CO line, indicate that Type 2 Seyferts have a larger amount of molecular gas than Type 1's. However, we find that in Type 2's, $L_{CO} \propto L_B^2$ (Fig. 1a), whereas Heckman et al's results (with substantially larger scatter) are consistent with $L_{CO} \propto L_B$ (Fig. 1b). For Type 1's, both studies show $L_{CO} \propto L_B$ (Fig. 1). Sage and Solomon (1989, *Ap.J. Letters* 342, L15) also find $L_{CO} \propto L_B^2$ in 66 isolated spiral galaxies, from which they conclude that the blue light is not an accurate indicator of recent star formation activity in these galaxies. Data on a larger number of galaxies is required to confirm the results of our study.

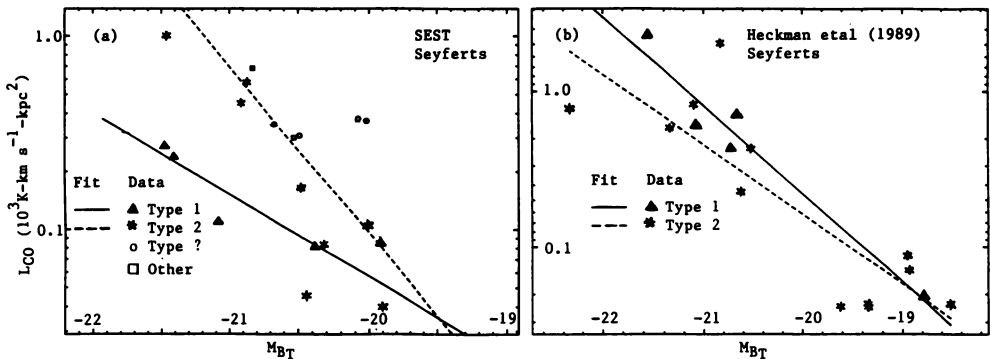


Fig. 1. The observed CO luminosity vs. Blue Magnitude in Seyfert galaxies, with least-squares fits