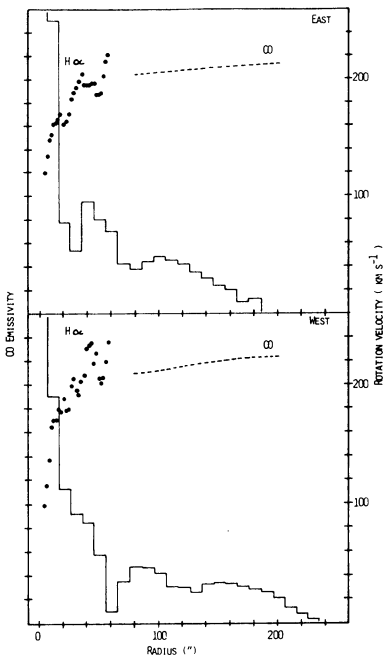

Fig. 2. Deconvolved radial distribution of the CO emission, determined separately from the data on the eastern and western side of the nucleus. The rotation velocities discussed in the text are also shown.

the Hα velocities do not apply to the molecular gas. The derived radial distribution of the CO emission is dependent on the assumed velocity field; however, the gross characteristics are retained for more feasible rotation curves (i.e. rotation curves giving better fits to the observed profiles).

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CO OBSERVATIONS OF THE SPIRAL GALAXY IC 342

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We present observations of the Scd galaxy IC 342 in the J = 1-0 transition of CO, performed with the Onsala 20-m antenna. The spectra

were obtained in a beamswitch mode.

Previous single dish observations (Morris and Lo 1978, Young and Scoville 1982) have mainly concentrated on a few radial cuts (see however Rickard and Palmer 1981 for an early, crude map). An interferometer map of the central 65" of IC 342 obtained at OVRO by Lo *et al.* (1984) reveals a bar-like molecular cloud structure in the centre.

Our observations (about 155 positions) cover a 3' × 4' area of the central region, and a 5' cut along the major axis. We have used a map-spacing of 16", approximately half the size of our HPBW of 33" (33" ∿ 720 pc at an assumed distance of 4.5 Mpc). In Figure 1 we show the integrated brightness distribution. In the centre we find an elongated structure with about the same extent and position angle as the bar seen at OVRO. We observe considerably more extended emission than the interferometer. An indication of a double peak is visible at the centre, which may be caused by a ring structure. It is also evident from Figure 1 that the CO emission is extended North and South of the central elongation. In the SE several complexes of intense CO emission can be seen. These clouds coincide with a prominent dust lane at the inner side of a spiral arm. In Figure 2 a position-velocity diagram along the major axis is shown. At position +130" there is a conspicuous spiral arm feature. This feature, which shows a velocity shift reminiscent of density wave related streaming seen in M51 (Rydbeck *et al.* 1985), coincides with an optical spiral arm.

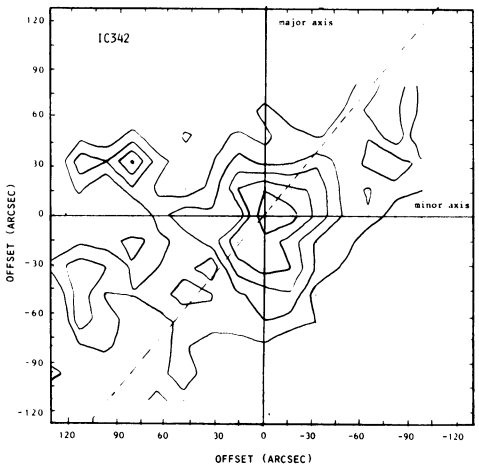

Fig. 1. The integrated brightness distribution. Dots represent the observed positions. The dashed line is the North-South direction.

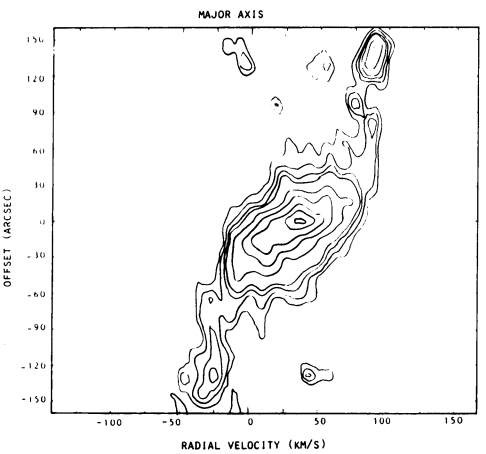

Fig. 2. The major axis position-velocity diagram. Note the spiral arm feature at position +130".

Our main results are:

(i) An elongated structure in the centre, which might be double peaked.

(ii) Several complexes of intense CO emission at positions coinciding with a prominent dust lane.

(iii) A clear spiral arm feature in the position-velocity diagram along the major axis at a position corresponding to an optical arm.

This is an ongoing project, and in the immediate future we plan to further improve and extend our map and also to use deconvolution techniques to increase the resolution.

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