

A MOLECULAR GAS RING IN NGC 1808

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The active galaxy NGC 1808 has been studied in $^{12}\text{CO}(1-0)$ and $^{12}\text{CO}(2-1)$ transitions with the SEST telescope and in HI and radio continuum with the VLA.

The CO(1-0) distribution shows a central concentration and weak emission from the inner disk. The most significant result concerning the morphology of the CO is seen in the channel maps. A ring-like distribution is obvious in the nuclear area. Also the north-east direction from the nucleus, where the amazing optical filaments are seen, shows broad spectra indicating an outflow.

The ratio of $^{12}\text{CO}(2-1)/^{12}\text{CO}(1-0)$ is ~ 2.0 for the peak position. After convolution this ratio falls, but only to $\sim 1.3 \pm 0.2$, the highest value after M82 (Loiseau et al., 1990) seen for any galaxy. This indicates that the CO gas in the nuclear area of NGC 1808 is partly optically thin, possibly as a result of high nuclear activity.

Our HI observations show that the nucleus is seen in absorption. Also an HI ring is detected with a radius of 44" in the nuclear area. Mass outflow from the nuclear region, normal to the major axis of NGC 1808, is confirmed.

The radio continuum observations indicate the existence of magnetic fields. There are two maxima of polarization symmetrically disposed about the nucleus (Dahlem et al., 1990) in the direction of the minor axis. Radio knots have been detected in high angular resolution VLA observations by Saikia et al. (1990), reminiscent of the high angular resolution observations of the starburst galaxy M82.

References

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