12. OBSERVATIONS OF RADIO CONTINUUM EMISSION FROM M 31

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Abstract. Observations of continuum emission from M 31 have been made with the Cambridge One-mile radio telescope (Pooley, 1969). Two observing frequencies were used; maps of the whole of the visible nebula were obtained at 408 MHz, and spectral data for the central region at 1407 MHz. The results show that the radiation from the disc is confined to the nucleus and to the population I spiral arms.

The nuclear region may be described in terms of two spherical radio components, with diameters of 200 pc and 1 kpc. Any more compact source at the nucleus has a luminosity less than $\frac{1}{20}$ of that of the source Sgr A in our Galaxy.

The intensity of the radio emission from the spiral arms is closely correlated with the number of H II regions visible. The main spiral arms, corresponding to Baade's arms 4 and 5, cross the major axis at about 8 and 12.5 kpc from the nucleus. The spectrum of the radiation shows that it is non-thermal in origin; the spectral index is 0.8. The intensity is less than that which would be observed from our own Galaxy at the same distance.

Reference

Pooley, G. G.: 1969, *Monthly Notices Roy. Astron. Soc.* **144**, 101.

Becker and Contopoulos (eds.), The Spiral Structure of Our Galaxy, 72.