

FILAMENTARY NEBULOSITY SURROUNDING M87

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Recently we have obtained both $H\alpha$ + [NII] and broad-band red exposures of a number of galaxies with an RCA 320 x 512 CCD at the prime-focus of the 3.6 m CFH Telescope. Figure 1 shows the difference between $H\alpha$ and red exposures (each with a total integration time of 60 min) of M87 = NGC4486.

1. We confirm the observations of Ford and Butcher (1979), albeit at much fainter limiting surface brightness and at higher resolution, that M87 is embedded in a system of filamentary $H\alpha$ emission.
2. No major filaments are seen south of a line joining the jet, the nucleus and the Arp (1967) "counterjet". De Young, Condon and Butcher (1980) have interpreted this, together with the swept-back appearance of the M87 radio lobes, as evidence for subsonic motion of M87 towards the north.
3. The figure shows no obvious relationship between the $H\alpha$ filaments and the M87 jet.
4. Arp's counterjet has a knotty structure that seems quite different from that of the other M87 $H\alpha$ features.
5. For an assumed distance of 15 Mpc the filaments in M87 have lengths of up to 3 kpc and widths of ~ 0.2 kpc.
6. Comparison with Lynds' (1970) $H\alpha$ photograph of NGC1275 shows that the emission nebulosity associated with Per A is much patchier than that surrounding Virgo A.
7. M49 = NGC4472 in the Virgo cluster does not contain a system of $H\alpha$ filaments like that seen near M87.

REFERENCES

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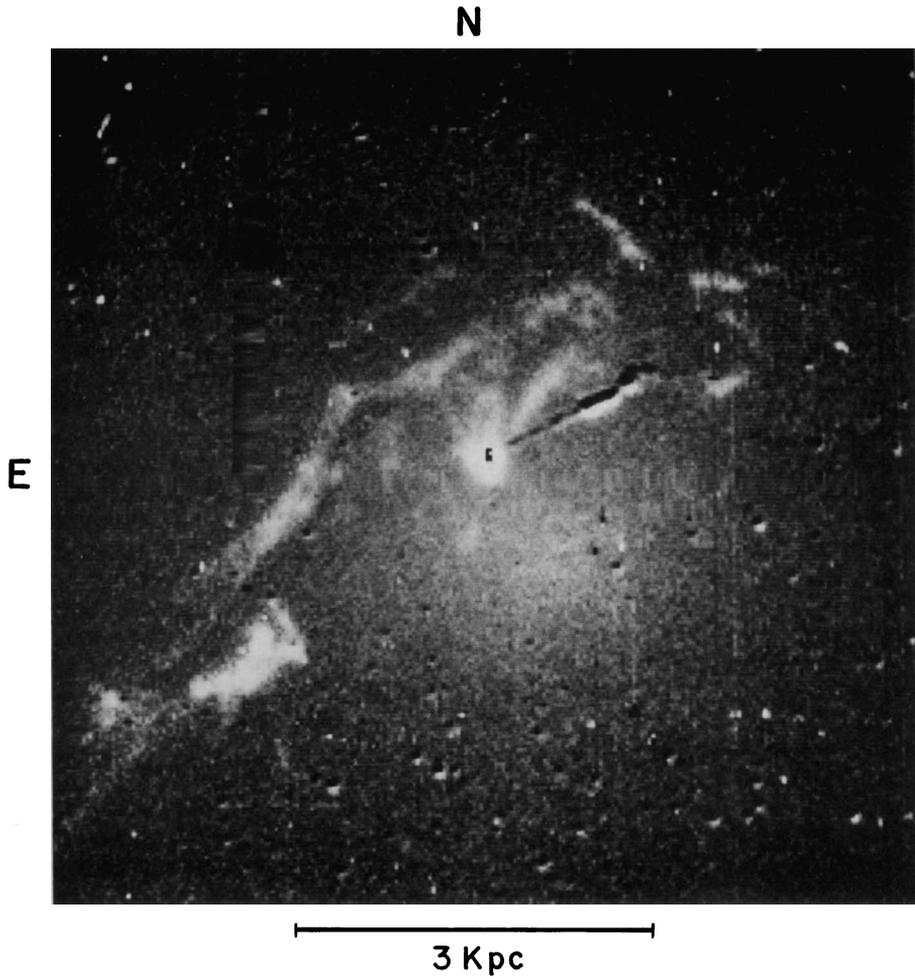


Figure 1. H α emission filaments surrounding M87. The bright knots SE of the nucleus are Arp's "counterjet". The jet and some globular clusters are visible because of the imperfect alignment of the H α and R images.