

THE CENTRAL BAR IN M 94

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Surface photometry in I, J, K of the oval disk galaxy M 94 (NGC 4736) reveal a weak central stellar bar of 0.7 kpc semi-major axis length, comprising $\approx 14\%$ of the total light within $20''$. By stellar kinematics the existence of a small spheroidal bulge with $v/\sigma \approx 0.8$ was discovered. The ionized gas (H_α) in this region shows global and local deviations from the stellar kinematics. Model calculations of closed orbits for the cold gas in the combined potential of bar, disk, and bulge predict large non-circular motions in equilibrium flow. However, these do not fit the observed gas kinematics; obviously hydrodynamical forces play a role in the central region of M 94.

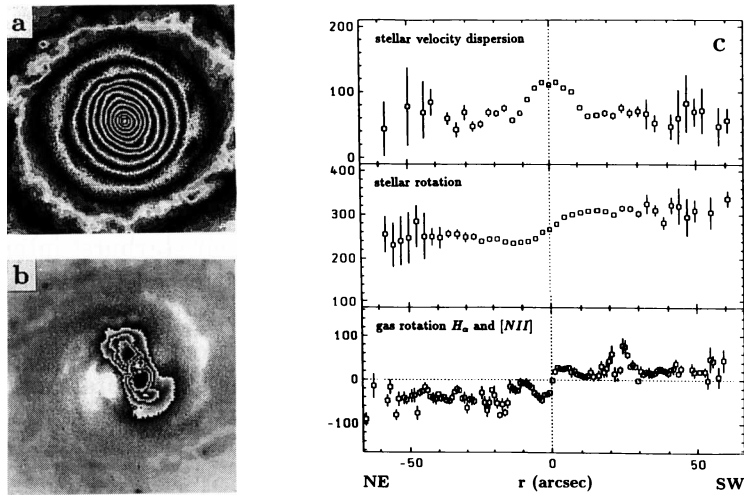


Figure 1. a) I -image of M 94, $75'' \times 75''$. b) Residual bar after subtraction of an axisymmetric model for disk and bulge. c) Stellar velocity dispersion, stellar rotation curve, and perturbed gas rotation curve along $P.A. = 45^\circ$ (in km/sec).