VI. THE GALACTIC NUCLEUS

INTRODUCTION TO THE SESSION

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Observational data:

There has been a great development in the past few years of observational data of various kinds:

(a) HI observations of high resolution and sensitivity (Cohen and Davies, Burton et al., Kerr et al.)
(b) Observations of molecules, in particular high-resolution observations of CO (Burton, Gordon, Bania, Liszt, Solomon et al.)
(c) Infrared and far-infrared
(d) Ionized gas: hydrogen recombination lines, and in particular NeII (with 4" beam) (Mezger et al., Townes, Wollman et al.)

Discoveries:

(a) and (b) Many new features having large radial motions in addition to rotation. These features lie in a plane tilted $\sim$22° relative to the galactic plane. Probably most, if not all, of the gas within R $\sim$ 1.3 kpc lies in a tilted disk (Shane, van der Kruit, Cohen and Davies, but in particular Burton and Liszt). Very high gas density within R $\sim$ 200 pc (Bania).
(c) Distribution of old population; gravitational field. Infrared nuclear disk of radius $\sim$10" with discrete "10-μ sources."
(d) High random velocities of 10-μ sources, which are probably compact HII regions.
(e) Nucleus of about 0".001 (20 A.U.) diameter.

Problems of Interpretation:

Are the radial motions due to expulsion or can they be explained by gasflow along a small inclined bar? Can the tilted disk be maintained?

W. B. Burton (ed.), The Large-Scale Characteristics of the Galaxy, 323.