

PLANETARY NEBULAE AND THE GALACTIC BULGE

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ABSTRACT. Fifteen new PN have been discovered in the region of Baade's Windows using an objective prism technique. Absolute spectrophotometry, excitation classes, radii and radial velocities have been obtained. Radial velocities were also measured for eight other PN in this region. After correction for solar motion and the circular velocity at the sun, the radial velocities of bulge PN (V_c) with $|b| < 5^\circ 5'$ show good evidence for a rotation of the bulge. If $V_c = \alpha + \beta \Delta l$ then,

TABLE 1

Δl	No.	$\alpha \text{ km s}^{-1}$	$\beta \text{ km s}^{-1}$	$\sigma \text{ km s}^{-1}$
$< 10^\circ$	147	-13.6 ± 8.6	12.0 ± 1.9	103 ± 6
$< 5^\circ$	109	-16.6 ± 10.5	15.2 ± 4.0	109 ± 7

Ionized masses (M_1) for the new PN range over a factor ~ 50 . These results and those of Gathier *et al.* (1983) show that $M_1 < \sim 0.3 M_\odot$ in the bulge. This is in good agreement with the predictions of Feast and Whitelock (1987). They find $M_{B01} > -4.7$ for bulge Miras and IRAS sources which together with pulsation masses and evolutionary theory leads to predicted nebular masses $< 0.3 M_\odot$ and an evolutionary age of the most massive bulge objects of ~ 5 Gyr. The absence of high excitation planetaries in the bulge is consistent with the lack of younger (more massive) progenitors.

REFERENCES

Feast, M.W. and Whitelock, P.A. 1987, in *Late Stages of Stellar Evolution*, ed. S. Kwok and S.R. Pottasch (Dordrecht: D. Reidel), p. 33.
 Gathier, R., Pottasch, S.R., Goss, W.M., and van Gorkom, J.H. 1983, *Astron. Astrophys.*, **128**, 325.