

## NOTES FROM OBSERVATORIES

AN ACCURATE POSITION AND RADIAL VELOCITY FOR THE  
PLANETARY NEBULA IN THE FORNAX DWARF GALAXY

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We have observed the Fornax planetary nebula with a long-slit spectrograph. Its heliocentric radial velocity is  $50 \pm 4 \text{ km s}^{-1}$ . This result resolves earlier uncertainty in the radial velocity of the Fornax system. The position of the planetary nebula has been measured from UK Schmidt plates.

The planetary nebula in the Fornax dwarf spheroidal galaxy was discovered by Danziger *et al.*<sup>1</sup> in 1978, and reported to have a radial velocity of  $10 \pm 40 \text{ km s}^{-1}$ . The object is to be used as a *Space Telescope* velocity standard, but the velocities available in the literature are inaccurate. As part of a project to measure the mass-to-light ratio of the Fornax galaxy, we observed the planetary nebula at the AAT on 1983 November 30, using the *IPCS* with the RGO spectrograph and 25-cm camera at high dispersion. The 1200J grating was used in its second order, centred near  $5000 \text{ \AA}$ . Observations were made in conditions of poor transparency (intermittent cloud). Analysis of the spectra (wavelength-calibrated with an argon discharge lamp) with the *SPICA* package gives a heliocentric velocity of  $48 \text{ km s}^{-1}$  with an estimated error of  $3 \text{ km s}^{-1}$  (mostly from uncertainty in the wavelength calibration). This result is the mean of measurements of three lines:  $H\beta$  and the [O III] doublet. Reanalysis of earlier data<sup>2</sup> obtained at the AAT in 1983 January shows that there exists an error in the derived absolute zero-point for the velocity of the Fornax planetary nebula; the result should have been  $54 \pm 4 \text{ km s}^{-1}$ . All the other results of that paper are unaffected. Our favoured final result for the combined data is  $50 \pm 4 \text{ km s}^{-1}$ . This is in good agreement with the mean velocity of  $45 \pm 5 \text{ km s}^{-1}$  derived by Lynden-Bell *et al.*<sup>2</sup> for objects in the Fornax system from measurements of carbon stars and globular clusters.

The position of the object has been measured by the *APM* machine at Cambridge from a Schmidt plate kindly supplied by Dr. S. Demers, and confirmed from measurements on the discovery plates held in the *UKSTU* library at Edinburgh. The object has co-ordinates RA  $2^{\text{h}} 37^{\text{m}} 44^{\text{s}}.85 \pm 0^{\text{s}}.1$ , Dec.  $-34^{\circ} 45' 40'' \pm 1''$  (1950.0). There is a star of similar brightness  $4''$  to the north of the object.

The observations were made in collaboration with D. J. Axon, R. D. Cannon, and D. Lynden-Bell.

## References

- (1) I. J. Danziger, M. A. Dopita, T. G. Hawarden & B. L. Webster, *Ap. J.*, **220**, 458, 1978.
- (2) D. Lynden-Bell, R. D. Cannon & P. J. Godwin, *M.N.*, **204**, 87F, 1983.