

EMISSION LINE PROFILES IN THE PLANETARY NEBULAE IC 4593 AND NGC 6153

D.P.K. Banerjee and B.G. Anandarao
Physical Research Laboratory
Ahmedabad-380 009, India

ABSTRACT. The Planetary Nebulae IC 4593 and NGC 6153 are two rather compact objects not well studied. The nebula IC 4593 is about 12 arcsec in diameter and has a central star of Type O7 f; while the southern nebula NGC 6153 is about 22 arcsec in diameter and its central star is faint and of unknown spectral type. Using a high-resolution scanning Fabry-Pérot spectrometer we have made profile measurements of emission lines $H\alpha$ $\lambda 6563$ A, [O III] $\lambda 5007$ A, and [N II] $\lambda 6584$ A in the central regions of these two nebulae. We have found expansion velocities for IC 4593 of 40 km s^{-1} in [N II] and 16 km s^{-1} in [O III]. In the case of NGC 6153, we have obtained expansion velocities of 15 km s^{-1} in [N II] and 13 km s^{-1} in [O III] line. The profiles in $H\alpha$ in both the nebulae do not show a double peaked feature due to the larger thermal broadening. In the case of IC 4593, both [O III] and [N II] profiles showed complex structures. These results and their interpretation will be discussed.

A NEW STUDY OF SOME GALACTIC PLANETARY NEBULAE

Stephen J. Meatheringham, Peter R. Wood, and D.J. Faulkner
Mount Stromlo and Siding Spring Observatories
Australian National University

ABSTRACT. Expansion velocities ([O III], [O II], and He II) have been measured for a sample of 64 Southern Planetary Nebulae (PN). The ratio of [O III] to [O II] expansion velocities is used to derive a typical ionized shell thickness of order $\Delta R/R_{\text{neb}} \approx 0.12$. Nebular electronic densities have been determined from the [O II] $\lambda\lambda 3727, 3729$ A doublet for 23 of these objects. These data are compared with previously published values. The Dopita *et al.* (1987) distance scale for Magellanic Cloud PN based on a correlation between observable nebular parameters is used to derive distances to 32 Galactic nebulae. These distances are compared with published values, and lead to the conclusion that the Dopita *et al.*, Daub (1982) and Maciel (1984) distance scales agree well, but that the Shklovsky (1956) method yields distances that are too large. Nebular ionized masses are also calculated for a subset of 30 objects.

189

S. Torres-Peimbert (ed.), Planetary Nebulae, 189.
© 1989 by the IAU.