

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

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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  $40 \text{ km s}^{-1}$  in [N II] and  $16 \text{ km s}^{-1}$  in [O III]. In the case of NGC 6153, we have obtained expansion velocities of  $15 \text{ km s}^{-1}$  in [N II] and  $13 \text{ km s}^{-1}$  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

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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.

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