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PHYSICAL CONDITIONS AND CHEMICAL STRUCTURE OF THE PNe NGC 2440 AND NGC 2371-72

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We present preliminary results of the physical conditions and chemical abundances determined through the planetary nebulae (PNe) NGC 2440 and NGC 2371–72. We have used low-dispersion long-slit spectra of regions defined by main axes and bright knots.

NGC 2440 is a polypolar Type I PN (Peimbert & Torres Peimbert 1983). It is described as formed by an expanding central ring and three bipolar structures at different position angles (López et al. 1998). NGC 2371–72 is a high-excitation bipolar PN whose nucleus has a $T_{\rm eff} \geq 120\,000$ K. Ionic and total abundances were obtained by Torres-Peimbert & Peimbert (1977) for two bright regions of this PN. To the best of our knowledge, there is no deeper study involving the different regions of this object.

These PNe were observed on January 2000 at the 2.1-m telescope of the Observatorio Astronómico Nacional at San Pedro Mártir, B.C., México. The telescope was equipped with a B&Ch spectrograph and a 1024×1024-pixel Tektronix CCD. The setup give us a dispersion of ~ 4 Å/pix and a spatial scale of $0\farcs98\,{\rm pix}^{-1}$. The spectral coverage ranged from 3500 Å to 7500 Å. The slit was oriented at several position angles (See Fig. 1). Image processing was carried out with VISTA, whereas the lines fluxes were estimated using IRAF. Chemical abundances and physical conditions were obtained with the ALIEN software (Cook & Vázquez, 2001, see Fig. 2). This work was supported by CONACyT grant I32815-E.

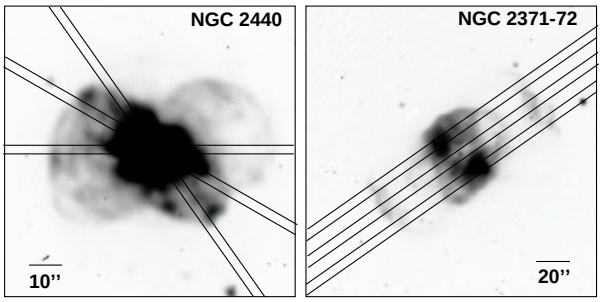

Fig. 1. Slit positions along planetary nebulae NGC 2440 and NGC 2371–72. North is up and East to left. Results for some of these regions are shown in Fig. 2.

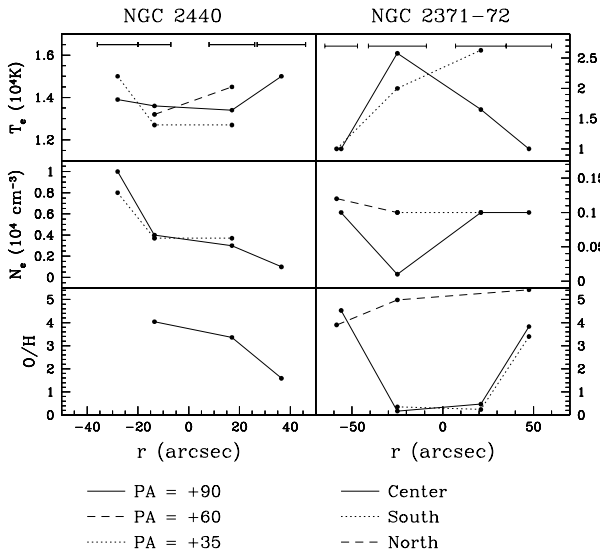

Fig. 2. Temperature, density, and oxygen abundance profiles. The limits of region where spectra were extracted are shown at the top panel. Negative positions are to the East from PN nuclei.

REFERENCES

Cook, R., & Vázquez, R. 2002, RevMexAA(SC), 12, 38 (this volume)

López, J. A., Meaburn, J., Bryce, M., & Holloway, A. J. 1998, ApJ, 493, 803

Peimbert, M., & Torres-Peimbert, S. 1983, in IAU Symp. 103, Planetary Nebulae, ed. D.R. Flower (Dordrecht: Reidel), 233

Torres-Peimbert, S., & Peimbert, M. 1977, RevMexAA, 2, 181

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