NARROW BAND PHOTOMETRY AND MAPPING OF THE PLANETARY NEBULAE NGC 6210 AND NGC 7009

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This paper is based upon observations carried out at the Observatorio Astronómico Nacional, San Pedro Mártir, B.C.N. México. They are of two types: (1) $\alpha(16)\Lambda(9)$-photometry, obtained with the 1.5-m Johnson telescope, and (2) maps at the wavelengths of Hα and λ7751 A [Ar III] emission lines secured with the 2.1-m telescope.

The results clearly indicate that planetary nebulae are extremely well separated from stellar objects in the $\alpha(16)\Lambda(9)$-plane: they fall above and to the right of the extreme Herbig Ae/Be stars (Mendoza 1987: Proceedings IAU Coll. 92, "Physics of Be Stars"). This is so because the Hα total emission line in NGC 6210 and NGC 7009 is stronger than in stellar objects (Mendoza 1987: Revista Mexicana Astron. Astrof., 14, 310 and references therein), and because the λ7751 A [Ar III] falls in the short wavelength filter that defines the "blue" continuum of the $\Lambda(9)$-index. These characteristics easily distinguish planetary nebulae from stellar objects.

We have also developed a subroutine to obtain maps of extended sources with one dimensional detectors at any wavelengths, such as the He I λ10830 A. We have secured maps of Hα and λ7751 A [Ar III] emission lines to test our technique, which by the way, allows us to measure linearly ($\sim$ 1%) in a flux range of six decades.

The results of the maps yield that: (1) the flux at the center of NGC 6210 and NGC 7009 is higher by a factor of about 10^5 than at the edges; (2) structure in the surface brightness is easily detected, and (3) the $\alpha(16)$ and a new index defined for the [Ar III] emission line are weaker in those pixels that contain the central star.

The above indicates that the outlined procedure is satisfactory, thus, we plan to obtain maps of several planetary nebulae at different wavelengths, including the He I λ10830 A line.

S. Torres-Peimbert (ed.), Planetary Nebulae, 49.