

SPECTROSCOPIC DISTANCES TO CENTRAL STARS OF PLANETARY NEBULAE

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ABSTRACT. We present spectroscopic distances for 22 central stars of planetary nebulae. These distances have been determined using information provided by our non-LTE model atmosphere analyses of the stellar H and He absorption line profiles. In this way, no assumptions about nebular properties are necessary.

Our spectroscopic distances turn out to be larger than many other frequently cited values. We show that our distances are not in contradiction with the available information about the interstellar extinction, and we describe additional evidence supporting them.

INVESTIGATION OF TWO PLANETARY NEBULAE AND THEIR ANGULAR VICINITY IN CYGNUS

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ABSTRACT. We present the results of an investigation of M1-79 and K3-82. Physical parameters like expansion velocities, spatial shapes, Zanstrahydrogen-temperatures, etc. were obtained by use of high resolution spectroscopy and CCD-images.

The two PN are medium excitation and exhibit usual expansion velocities. To find out the spatial shapes we utilized the simple model of a truncated spherical shell. A comparison between the theoretical intensity ratios from this model and the measurements is leading to the conclusion that both PN have the structure of a ring. K3-82 is seen pole-on, M1-79 is seen edge-on.

The distances of the two nebulae were examined with an accuracy of $\lesssim 30\%$ by means of the extinction-distance method. The distances are 1900 pc (K3-82) and 2000 pc (M1-79). With this method we also get information about the galactic structure in the angular vicinity of the two PN. The absorption is rising rapidly at about 0.5-2 kpc (K3-82) and 1-2.5 kpc (M1-79) to a plateau at $E_{B-V} = 1.1$ mag.

In addition we estimated the influence of wide-band photometry on this method, especially the effect on the value $R = A_V/E_{B-V}$. There is no great effect on the measurements for early type stars, but an effect for late-type stars, which should be considered.

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