

# CATALOGUE OF PLANETARY NEBULAE AND THEIR NUCLEI

Acker A., Marcout J.  
Observatoire de Strasbourg - France

Since the catalogue by Perek and Kohoutek (PK) has been printed in 1967, numerous observations and theoretical studies have been made, and new planetary nebulae (NP) have been discovered, in addition to the 1036 PN indexed by PK. We have compiled a bibliographic index from 1965, covering about 80 papers per year ; a catalogue of 1455 PN and a bibliographic index have been established (Acker, Marcout, Ochsenbein, 1981).

Now, two important catalogues are being compiled which result from the joint work of the Observatories of Strasbourg, Bordeaux, Marseille, the Laboratory of Astronomy of Montpellier, and the Observatory of Haute Provence.

## 1. CATALOGUE OF CENTRAL STARS OF PLANETARY NEBULAE

This catalogue concerns about 250 nuclei of PN (NPN) and will be established by A. Acker (Strasbourg), M. Chopinet (Bordeaux), F. Gleizes (Montpellier), J. Marcout (Strasbourg), with the help of F. Ochsenbein (Centre de Données Stellaires de Strasbourg) and J.M. Roques (Montpellier).

1.1. The data of observation published since 1965, as well as the bibliographical sources are presented :

- designations : the names HD, BD, CPD, ... of about a hundred NPN are given ; for all of them, the PK n<sup>o</sup> and the usual name of the PN are indicated.
- coordinates : the values  $\alpha$  and  $\delta$  are given for 1950, 1985 and 2000, values which are accurate ( $\pm 1''$  to  $\pm 2''$ ) for about a hundred bright NPN, and less accurate for the others ( $\pm 0.5$ )
- magnitudes : the available values  $m_p$ ,  $m_{pv}$ , U, B, V are indicated.
- spectral type : for about 120 NPN, a spectral classification has been

given, although the types are usually ill-defined. Most of them correspond to hot stars (continuous, WR, O, Of, ...) ; except twenty stars (A, F, G) which are either variables or binaries.

- radial velocities : we give the radial velocity of the star, the one of the PN, and the velocities of expansion, from the study of stellar winds (for the PN studied with IUE in particular) and from the splitting of the nebular lines.
- particularities : the data concerning the variability and the binarity (visual, spectroscopic, eclipsing) are indicated.

1.2. The bibliographic references are collected. We give the authors, year, title of the paper, name of the magazine, volume and page numbers, for the calculation of distances, luminosities, temperatures and masses in connection with the type of population and the age.

1.3. Field-maps are provided for every NPN

- BD map - field :  $1.5^\circ \times 1.5^\circ$
- map from Palomar - field :  $15' \times 15'$

This catalogue will be available for IAU Symposium N° 103 "Planetary Nebulae", London, August 9 - 13, 1982.

#### MONOCHROMATIC ATLAS AND CATALOGUE OF LARGE PLANETARY NEBULAE

This atlas, started in 1981, will present monochromatic images and bibliographic information for about thirty of the brightest PN with a diameter  $\emptyset \geq 30''$ . It will be prepared by A. Acker (Strasbourg), M. Chopinet (Bordeaux), C. Hua (Marseille), R. Louise (Marseille), with the help of J. Marcout and F. Ochsenbein (Centre de Données Stellaires, Strasbourg) and is to be published as a book in 1983-1984.

2.1. Monochromatic images are being taken by R. Louise using the 120 cm telescope of the Observatory of Haute Provence (O.H.P.) with  $\{OI\}$ ,  $\{OII\}$ ,  $\{OIII\}$ ,  $H\alpha$ ,  $H\beta$  and  $\{NII\}$  filters. These photographs give us indications about the morphology, in particular about the presence of external envelopes and halos. They enable as well to study the variations of intensity of the emission for these elements, at various points of the PN (resolution about  $5''^2$ ).

Spectra of these PN are taken by A. Acker and M. Chopinet with the "Multiphot" system set up at the Coudé focus of the 152 cm. The resolution is compatible with the one of the photographs ( $5''^2$ ) for an exposure inferior or equal to 10 minutes. Two ranges are used, each one 600 Å wide, centered on 4800 Å and 6500 Å. We will determine the variations of the ratios of line intensities at various points of the

PN ; these measurements will be connected to the previous ones.

For the most extensive PN (listed by Abell) images are obtained by C. Hua with the I.P.C.S. system set up at the Cassegrain focus of the 193 cm telescope of the O.H.P. ; these tracings give immediate quantitative information.

2.2. Observational data and bibliographic references are provided for all these objects : designations, coordinates (1950, 1985, 2000), sizes, magnitudes, morphological type, excitation class, radial velocities and velocities of expansion, magnitude and spectral type of the nucleus.

These catalogues summarize what we know at present. They will permit to direct future observations, and to bring out certain general properties of the PN and their nuclei.

#### REFERENCES

- Acker A., Marcout J. and Ochsenbein F. : 1981, *Astronomy and Astrophys. Suppl. Ser.* 43, 265  
Perek L., Kohoutek L. : 1967, *Catalogue of Planetary Nebulae*, Czechoslovak Akad. of Sciences