

ON THE PHYSICAL DIFFERENCES BETWEEN THE PLANETARY NEBULAE OF THE GALACTIC CENTRE GROUP AND THE PLANETARIES OF THE GENERAL GALACTIC FIELD

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The mean physical parameters were estimated for the planetary nebulae of the two groups, regarded as a whole: planetaries of a general Galactic field (GGF), and those, belonging to a large group seen in the Galactic centre direction (CG).

The mean central star temperature, \bar{T}_* , for the objects of each group was determined by solving the equation of the electron energy balance in the nebula; the optical depth, τ , and the collisional excitation in hydrogen were estimated and taken into account. The necessary values of $I(N_2)/I(H\beta)$ were obtained from observations.

For the planetaries of both groups there were estimated the mean electron density, \bar{n}_e , the mean electron temperature, \bar{T}_e , the mean degree of ionization, the dimensions and masses of the nebular envelope (\bar{R}_{neb} , \bar{M}_{neb}), and the principal parameters of the central star (T_* , R_* , L_*/L_\odot). Some parameters ($\bar{m}_{pg}(*), \bar{\theta}'', \bar{A}\beta, \bar{r}$) were evaluated on a base of data published in lists and catalogues.

The results permit placing the objects into the temperature-luminosity diagram. The members of the Galactic centre group (CG) fall into the region of the optically thick objects, regarded as the earliest evolutionary stage of planetary nebulae. The considered objects of a general Galactic field (GGF) occupy on the average the region, intermediate between optically thick and optically thin nebulae.