

DEPENDANCE OF THE METALLICITY OF PLANETARY NEBULAE WITH THE GALACTIC HEIGHT ABOVE THE DISK

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Abstract. Abundances of O,N,He,S,Ar have been derived from the observations of PN at various heights above the plane with the plasma diagnosis code HOPPLA (Köppen et al. 1991). A gradient in O and N appears in the first 1000 pc. No correlation is found above.

We used the "Strasbourg-ESO catalogue of Galactic PN" (Acker et al., 1992) as a basis to select homogeneously PN above 300pc using Shklovskii distances calculated from the de-reddened $H\beta$ fluxes. 23 PN could be observed at the ESO 1.52m telescope with a B&C long slit spectrograph. Abundances have been deduced via the plasma diagnosis code "HOPPLA".

The remarkable features are an absence of variation above 1000pc and a gradient below. The first point could be compatible with a fast collapse of the Thick Disk. The second can not be explained if we assume that metallicity is a marker of time. PN spend the most of their time near their maximum $|z|$. Thus, the galactic structures where they are originating from should be hollow, which is hard to conceive. Therefore we prefer to explain it through a variation of the age-metallicity relationship with $|z|$ for low $|z|$ PN.

References

- Acker A., Ochsenbein F., Tylanda R., Stenholm B., Marcout J. : 1992, "The Strasbourg-ESO catalogue of Galactic Planetary Nebulae" publ. ESO ,
 Barker T.: 1978, *ApJ* **220**, 193
 Faundez-Abans M., Maciel W.J.: 1988, *Rev.Mex.Astron.Astrof.* **16**, 105
 Köppen J., Acker A., Stenholm B.: 1991, *A&A* **248**, 197

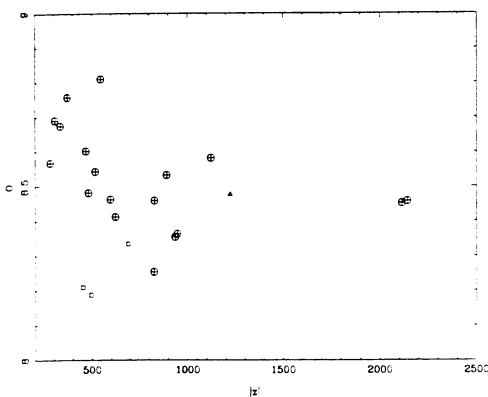


Fig. 1. oxygen abundance vs. $|z|$

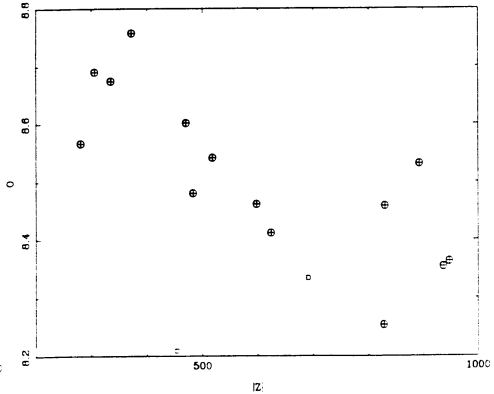


Fig. 2. lookup at the first 1000pc