

## RADIO CONTINUUM OBSERVATIONS OF SOUTHERN PLANETARY NEBULAE CANDIDATES

G.C. VAN DE STEENE and S.R. POTTASCH

*Kapteyn Laboratorium, P.O. BOX 800, 9700 AV Groningen, The Netherlands*

In an attempt to find new Planetary Nebulae we have short radio continuum observations at 6 cm and 3 cm of 90 PN candidates with the Australian Compact Array. We selected the unidentified objects from the IRAS Point Source Catalogue on basis of their PN colors. Detection of radio continuum emission at the IRAS position almost certainly confirms that these objects are PN, because it indicates the presence of ionized gas. Therefore the 18 detected sources are considered new PN. Because of their high brightness temperatures, they are probably young PN.

Their radio and IR properties are remarkably similar to the known PN with stellar appearance studied by Aaquist and Kwok (1990). However, among our detections, PN with higher IR excess are much more abundant. When we compare the radio and IR properties of our discovered PN in the Galactic Plane with the ones in the Galactic bulge, found by Ratag and Pottasch (1990, 1991) using the same method and having approximately the same observational constraints in the radio observations, then the differences are more substantial. The new PN which they detected, have in general a lower brightness temperature and an even higher IR excess. Furthermore we also notice a decrease in IR excess for PN below -60 degrees in Galactic longitude as first mentioned by Zijlstra (1990). We appear to have found an indication for a different nature between Galactic bulge and Galactic plane PN.

### References

- A. Aaquist, S. Kwok, 1990, *A&A Suppl. Ser.* 84, 229
- M.A. Ratag, S.R. Pottasch, 1990, *A&A* 233, 181
- M.A. Ratag, S.R. Pottasch, 1991, *A&A Suppl. Ser.* 91, 481
- A.A. Zijlstra, 1990, *A&A*, 234, 387