DETECTION OF OH MASER EMISSION AT 1667 MHZ FROM IC 4997

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We report the first detection of OH emission at 1667 MHz from a planetary nebula, IC 4997 (Figure 1). OH emission in satellite line of 1612 MHz was detected already from planetary nebulae not only Vy 2-2 (Davis and Seaquist 1979), but also two IRAS objects which were distinguished from OH/IR stars as planetary nebulae (Pottasch et al 1987). OH observations of IC 4997 have been carried out with the large radio telescope at Nançay, France. Highly resolved optical emission lines were obtained at the Okayama Astrophysical Observatory, Japan.

Detected OH line of this work shows unexpectedly different radial velocities, V_{LSR}(OH)=-11 km/sec from the measured values in optical regions, V_{LSR}(Opt)=-44±2 km/sec and in the recently detected HI absorption line, V_{LSR}(HI)=-64±2 km/sec (Altschuler et al 1986). The profile of our OH line is also quite different from those of usual OH/IR stars and very sharp. The OH source may belong to the expanding materials at far side from us and to the boundary between HII gas and its surrounding materials which are responsible to observed infrared excess and pumping.

A complete paper should be submitted to Astron. Astrophys..

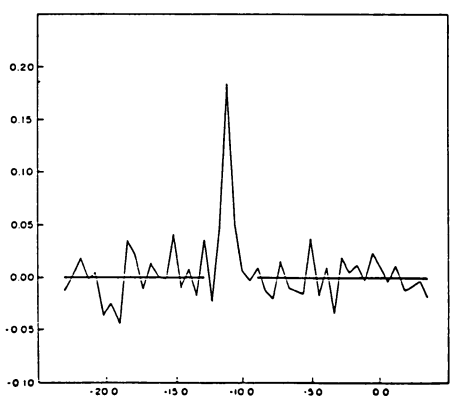

Fig. 1. OH line profile of IC 4997.

S. Torres-Peimbert (ed.), Planetary Nebulae, 209.