

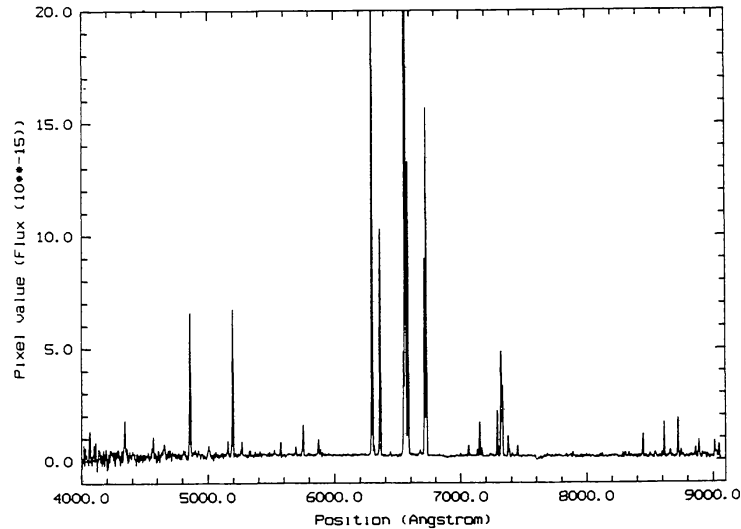
SPECTROSCOPY OF THE PROTOPLANETARY NEBULA CRL 618

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CRL 618 is a prototype proto-planetary nebula. It is in the transition phase from the AGB to the early planetary nebula phase. The invisibile central star is surrounded by a compact H II region which is also obscured by a thick neutral dusty torus. The compact H II region is surrounded by a thick bipolar envelope which is obviously made of material ejected by the progenitor star at earlier stages.

We present optical spectra with a resolution of 1 Å/pixel in the wavelength range from 4800 Å to 6800 Å and 3 Å/pixel in the range from 4000 Å to 9000 Å. The high resolution spectrum show a separation of the two lobes of 115 km/s in the forbidden lines and 65 km/s in the Balmer lines. This agrees well with former observations of Carsenty and Solf (Carsenty, Solf 1982). The lower resolution spectrum reveal serveral newly identified emission lines of Fe II, C I and O I.

However, the line intensities for several diagnostic lines seem to have changed since the first observations made by Westbrook in 1975 (Westbrook 1975). So the evaluation of the S II and N II lines indicate that the lobes became hotter and more dense since the discovery of the object. CRL 618 provides a unique chance to observe directly the evolution from the AGB to a planetary nebula.



Carsenty, U., Solf, J., 1982 *Astron. Astrophys.*, **106**, 307  
Westbrook, W. E., et. al. 1975, *Astrophys. J.*, **202**, 407