

A SPECTACULAR MASS-LOSS EVENT OF THE CENTRAL STAR OF LONGMORE 4

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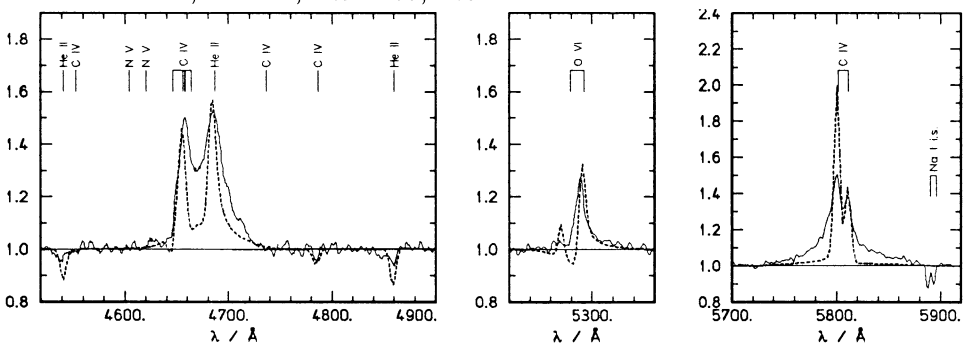
The nucleus of the PN Lo4 is very hot and H-deficient and may be classified as a PG 1159 star (Werner 1992). Besides K 1-16, it is the second known pulsating central star. New spectra were taken between May 1991 and Febr. 1992. Within 18 days we witnessed a rapid decline of an emission line phase, which has begun less than 7 months ago. During this time Lo4 has changed its spectral type from PG 1159 to early WC (WC2 or WC3) and back to PG 1159. This phenomenon has never been observed before in hot post-AGB stars. The event is interpreted as an intrinsic phenomenon. Because of the short time scales, the variations are probably confined to the outermost stellar layers. It is known that the pulsation driving zones are close to the stellar surface and we speculate about a causal relation between enhanced mass-loss and possible variations in the pulsation behaviour. Spectral analysis was performed using NLTE model codes for spherically expanding atmospheres (Hamann et al. 1991) to analyze the WC-type spectrum and for plane-parallel static atmospheres (Werner 1992) to analyze the PG 1159 type spectrum. We find $T_{\text{eff}}=120\text{kK}$ and $\log g=5.5$ during the PG 1159 phase. For the WC phase we obtain the same T_{eff} and the mass-loss rate $\log(\dot{M}/(M_{\odot}/\text{yr}))=-7.3$. The element abundances are typical for PG 1159 stars (He:C:O=46:43:11, by mass) and $v_{\infty}=4000\text{ km/s}$. More details can be found in Werner et al. (1992).

Hamann, W.-R., Koesterke, L., Wessolowski, U. 1991, NATO ASI Series C, 341, 69

Werner, K. 1992, Lecture Notes in Physics 401, Springer, Berlin, p. 273

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Wessolowski, U. 1992, A&A 259, L69



Line profile fits to the WC-phase spectra computed with the NLTE wind-code