

THE HYPERGIANT VARIABLE HR 8752 = HD 217476

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HR 8752 is one of the brightest stars of the Galaxy. Humphreys (1978) gives its absolute visual and bolometric magnitudes between -9.1 and -9.5, and between -9.2 and -9.5, respectively. The star received its variable star name, V509 Cas, in 1972 (Kukarkin et al., 1972). Radial velocity variations were first noticed by Harper (1923) and by Campbell and Moore (1928). In Harvard Ann. Vol. 44 (Pickering, 1899) there are indications for light variation at the end of the 19th century.

The light variation of HR 8752 is quasi-periodic (Zsoldos and Olah, 1985). A semi-period of 400 days can be assigned to the star. The theoretical models of Lovy et al. (1984) make it possible to derive the physical parameters of HR 8752 (assuming that it pulsates in the radial fundamental mode). Adopting a value of -9.3 for the absolute bolometric magnitude, the effective temperature can be obtained from the P-L-C relation for cool stars of Lovy et al. (1984)

$$\log P_o = -0.275 M_{bol} - 3.918 \log T_{eff} + 14.543 . \quad (1)$$

The pulsation constant can be derived from the following equation (Lovy et al., 1984)

$$\log Q_o = -0.054 M_{bol} - 0.864 \log T_{eff} + 1.635 . \quad (2)$$

The radius is easily obtainable from the $Q=P\sqrt{\rho}$ relation.

The observed and derived parameters of HR 8752 are as follows:

Semi-period	400 days
$\log (L/L_o)$	5.62
$\log T_{eff}$	3.70
Mass	30 M/M_o
$\log Q_o$	-1.060

$$\log (R/R_0)$$

2.93

These quantities are based upon the assumption of radial pulsation. The values are in good agreement with those of Arellano Ferro (1985).

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