

## THE DISTANCE TO THE S DOR TYPE STAR HR CARINAE

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**ABSTRACT.** The distance of HR Carinae is determined with the reddening distance method, resulting into  $r \sim 5$  kpc.

The distance of HR Car is usually taken to be  $\sim 2.5$  kpc (Viotti, 1971). With this distance and a reddening  $E(B-V)_J \sim 1$  (van Genderen et al. 1990) the absolute magnitude turned out to be much too low compared with other S Dor type stars. Applying Wolf's (1989) amplitude luminosity relation, the probable distance turned out to be  $r \sim 6$  kpc (van Genderen et al., 1990).

Therefore a check by the reddening distance method with the aid of photometry of neighbouring stars was necessary. About 60 stars within an area with a radius of 10' around HR Car (limiting magnitude  $\sim 14.5$ ) were measured with the VBLUW photometer mounted on the 90-cm Dutch telescope at the ESO, Chile. It appears that HR Car fits satisfactorily in the  $E(B-V)_J/r$  diagram with  $r \sim 5$  kpc, which agrees with the new value mentioned above.

Adopting  $M_{bol} = -9.5$  (for  $r = 6$  kpc) and  $T_{eff} \sim 14000$  K (van Genderen et al. 1990) the position of HR Car in the theoretical HR diagram is now consistent with other S Dor type stars.

### References

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