

THE OBJECT R136 IN THE CORE OF THE 30 DORADUS NEBULA

W. Seggewiss

Observatorium Hoher List, Universität Bonn, F.R. Germany

A.F.J. Moffat

Observatorium Hoher List, Universität Bonn, F.R. Germany
and Dépt. de Physique, Université de Montréal, Canada

R136 = HD 38268 is the luminous and *diffuse* central object ($V \sim 10^m$ in a region of 7 arc sec diameter) of the young populous cluster NGC 2070 at the centre of the giant H II region 30 Doradus.

New spectroscopic and photometric observations confirm the interpretation of R136 as the dense stellar core of the cluster (Walborn 1973).

We point out with special emphasis:

- (a) The visual light distribution is definitely not that of a single star. It can be fitted to cluster profiles with R136 as the core and NGC 2070 as the halo. R136 is not variable and emits $\sim 1/4$ of the total cluster light (visual and UV). As a cluster core it has a relaxation time of $\sim 10^6$ years.
- (b) Visual and speckle observations resolve R136 in at least eight stars above an unresolved background of mainly *stellar* light. The spectrum changes across the face of R136. Also, the sum of the spectra of resolved stars in NGC 2070 resembles closely that of the centre of R136 (Melnick 1983, who also gives a CMD of the cluster).
- (c) Comparison with the central cluster of the massive galactic H II region NGC 3603 shows
 - the striking similarity between the optical and the UV spectrum of R136 and HD 97950, the partially resolved core of NGC 3603 and
 - that the stellar core of NGC 3603 is even brighter and denser than R136.

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REFERENCES

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