THE DISTANCE TO HD 50896 (EZ CMA)

WERNER SCHMUTZ[1] and IAN D. HOWARTH[1,2]
[1] *Joint Institute for Laboratory Astrophysics*
University of Colorado and National Institute of Standards and Technology
Boulder, CO 80309-0440, USA
[2] *Department of Physics and Astronomy, University College London*
London, WC1E, 6BT, England

ABSTRACT. The WN5 star HD 50896 lies in the same sightline as the open cluster Cr 121. In order to investigate the possibility of cluster membership, we observed the interstellar Na D lines in the spectra of HD 50896 (=EZ CMa, =WR6) and stars in its neighbourhood (on the plane of the sky) at high spectral resolution (R=80,000 and 105,000). The observations were obtained with the 1.4-m coudé auxiliary telescope and the coudé echelle spectrograph of the European Southern Observatory.

From the strengths and velocity structure of the interstellar features it is immediately clear that HD 50896 is *not* a member of Cr 121; rather, it is a background object. A comparison with spectra of other background stars shows that the line of sight towards HD 50896 is very similar to those of HD 51854 (B1 V) and HD 50562 (B3 III). From intermediate-band and Hβ photometry the distances to these two B stars are 1.75 kpc and 1.95 kpc, respectively. The most red-shifted absorption component in the spectrum of HD 50896 is displaced only slightly more than that of HD 51854, and a little less than that of HD 50562. We conclude that the the most probable distance to HD 50896 is 1.8 kpc.

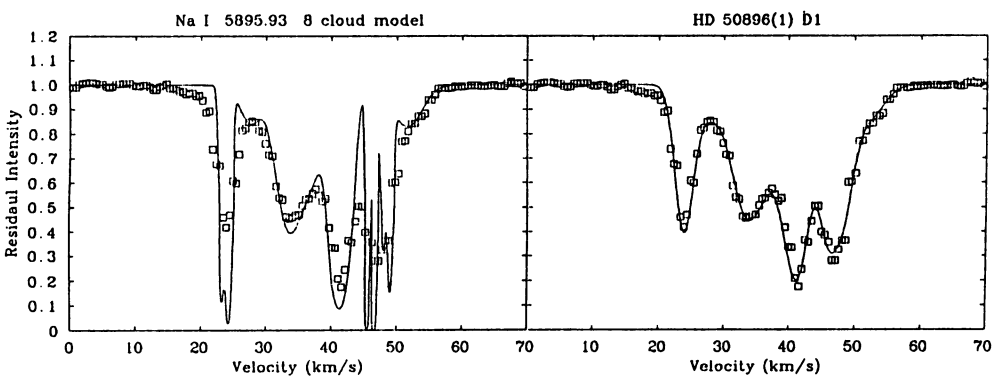

Fig. 1. Model fit to observation of HD 50896, taking into account both of the D lines, and including the hyperfine structure. The continuous line in the left-hand panel shows the synthesized D1 spectrum; the line in the right-hand panel represents the model spectra after a convolution with the instrumental profile (2.9 km s^{-1} full width). The observed profile is shown as squares.

K. A. van der Hucht and B. Hidayat (eds.),
Wolf-Rayet Stars and Interrelations with Other Massive Stars in Galaxies, 639.