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SPECTROSCOPIC MONITORING OF SOUTHERN GALACTIC O AND WN STARS

R. Gamen,[1] R. H. Barbá,[1] N. I. Morrell,[2] J. Arias,[3] and J. Maíz Apellániz[4]

We are conducting a spectroscopic monitoring of O- and WN-type stars for which there is no indication of multiplicity in the Galactic O-Stars Catalog (Maíz-Apellániz et al. 2004) or in the VIIth Catalog of Galactic Wolf-Rayet Stars (van der Hucht 2001). We search for radial-velocity (RV) variations indicative of orbital motion.

We also aim:

- to publish the spectrogram of the objects in the web version of the GOS catalog in order to build the most-complete ever observed spectral library of O stars.
- to compare the spectral types with those originally published 30-40 years ago in order to study long-term variability.
- to build a catalog of uniform radial velocities.
- to establish a first epoch for a future search for spectroscopic binaries.
- to complement this project with another one in the Northern hemisphere.

This monitoring has started on 2005, and so far we have collected about 1000 spectra of 140 O and WN stars using LCO (Chile) and CASLEO (Argentina) echelle facilities. This database is enlarged with spectra obtained during the last 10 years in CASLEO, some more retrieved from on-line archives, or provided by colleagues through collaborative works.

We have so far discovered 7 new binary systems (4 SB2), namely HD 93162 (P=208 d; Gamen et al. 2006, in collaboration with the Liège group) HD 115455 (P=15.1014 d), HD 123590 (P=60 d), HD 150135 (P=183 d), cl HM 1 8 (P=5.889 d), HD 165246 (P=4.602 d), and HD 168075 (P=43.1 d), and 3 stars showing double-lined spectrum for which a period has not yet been obtained.

One of the newly discovered binary systems is the star #8 (O5 III (f)) in the cluster C1715-387 (HM 1).

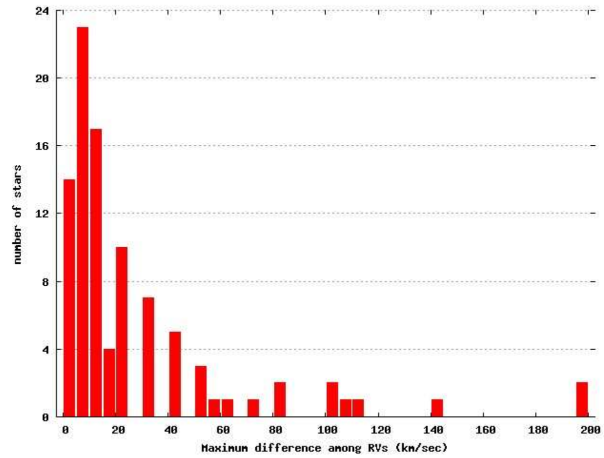

Fig. 1. Histogram of the maximum difference among RVs measured in the spectra of 95 stars of the sample. It shows that 58 stars present RV variations greater than 10 km s^{-1} whose nature has to be determined.

We found that its absorption lines show a periodic motion of 5.9 d. We derived the orbital solution of the He I 5876 Å, line measured in both components, which indicates minimum masses of 31 and 15 $M_\odot$ for the primary and secondary, respectively.

Another newly discovered system is HD 150135 (O6.5V). We were able to measure the He II 5411 Å, line in the spectra of both components, obtaining a period of 183 d. for the RV variations. The orbital solution indicates minimum masses of 69 and 23 $M_\odot$ for the primary and secondary, respectively. Nevertheless, this is a preliminary result (specially the RVs of the companion) and further spectra are needed in order to improve the orbital solution and explore the presence of a third component noticeable in some spectra.

The original version of this contribution is available at `http://www.dfuls.cl/~rgamen/Ostars/` (together with other results from the monitoring).

REFERENCES

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[1]Universidad de La Serena, Benavente 980, La Serena, Chile (rgamen@dfuls.cl).
[2]Las Campanas Observatory, Chile.
[3]Universidad Nacional de La Plata, Argentina.
[4]Instituto de Astrofísica de Andalucía, Spain.