

## BINARY FREQUENCIES IN THE OPEN CLUSTER IC 2602

Hugo Levato

Complejo Astronómico El Leoncito, CONICET  
ArgentinaCarlos Hernández, Nidia Morrell and Beatriz García  
Facultad de Ciencias Astronómicas y Geofísicas de La Plata,  
CONICET, CIC, Argentina

RESUMEN. Se presentan mediciones de velocidad radial para 25 estrellas en el campo de IC 2602. Se vincula el contenido de binarias con la rotación axial proyectada promedio para los miembros de cúmulos.

ABSTRACT. We present radial velocity measures for 25 stars in the field of IC 2602. We discuss the relation between binary contents and average projected axial rotation for cluster's members.

Key words: CLUSTERS-OPEN -- STARS-BINARY -- STARS-ROTATION

This paper is part of an extensive program for determining fundamental parameters of open clusters and associations. Among these parameters, we are interested, in this investigation, in the frequency of short-period spectroscopic binaries in order to include this cluster in the correlation between  $\langle V \sin i \rangle / \langle V \sin i \rangle_{FS}$  versus percentage of SB plus peculiar stars, proposed by Abt et al. (1973). Consequently, we observed 25 stars among the probable members of the cluster IC 2602. We obtained an average of 13 spectrograms per star using the spectrograph of the 1m-Yale telescope at Cerro Tololo Interamerican Observatory, with a dispersion of 43 Å/mm and a width of 1mm.

We analyzed the data with an analysis of variance test and we found two spectroscopic binaries (one already known) with computed orbits and another five possible variables of radial velocity.

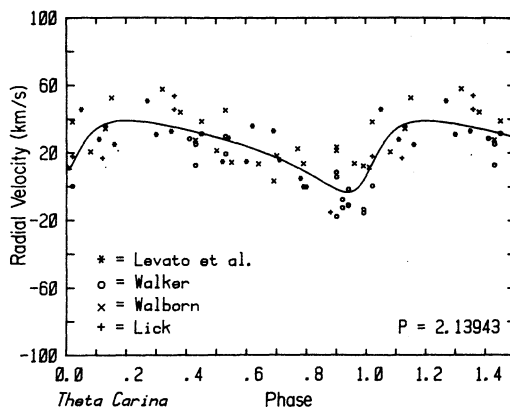


Fig. 1. Radial velocity curve for the spectroscopic binary  $\theta$  Carina.

The brightest star of this cluster ( $\theta$  Car) is a Helium-rich star, 09.5 V, member of a spectroscopic binary with an orbit computed by Walborn (1979). We recomputed the orbit by using all the observations available in the literature (Walborn 1979; Walker and Hill 1985) and Figure 1 shows the results of these computations. Figure 2 shows the observed correlations between average rotation and percentage of spectroscopic binaries plus Ap, Bp stars. The axial rotation velocities of the stars in IC 2602 were taken from Levato (1975).

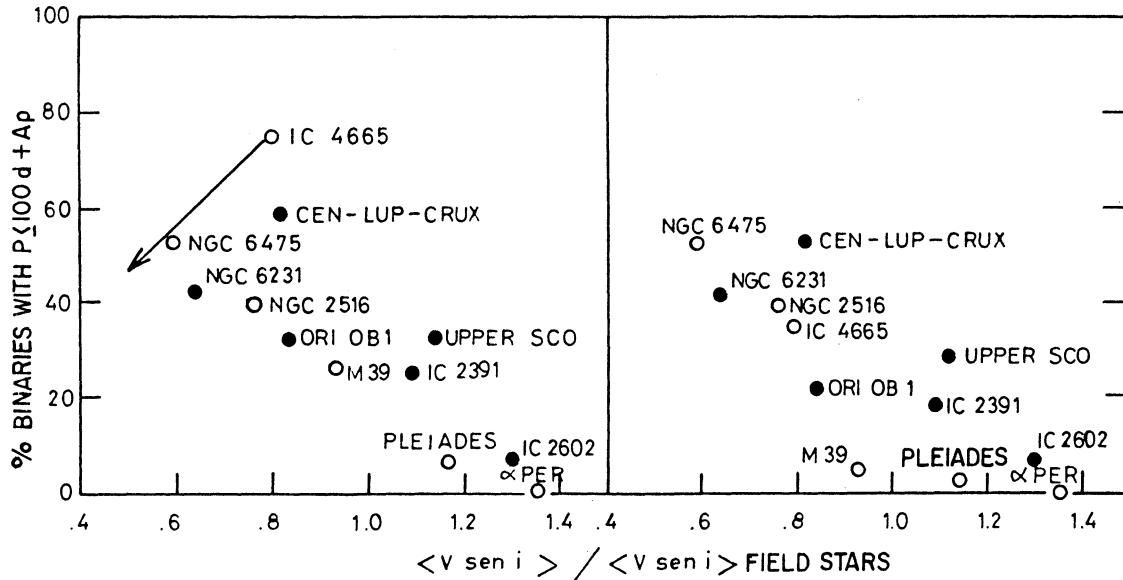


Fig. 2. Correlation between percentage of spectroscopic binaries plus magnetic Ap-Bp stars and the average axial rotation of the cluster members, respect to field stars of the same spectral types. The open circles represent the clusters originally included by Abt and Sanders (1973) and the filled circles represent the results of the present program.

#### REFERENCES.

- Abt, H. and Sanders, N.L., 1973, *Ap. J.* **186**, 177.  
 Levato, H., 1975, *Ap. J.* **195**, 825.  
 Walborn, N., 1979, *PASP* **91**, 542.  
 Walker, H.J., Hill, P.W., 1985, *As. & Ap. Supp.* **61**, 303.

Hugo Levato: Complejo Astronómico El Leoncito - Casilla de Correo 467 - 5400 San Juan.  
 Beatriz García, Carlos Hernández and Nidia Morell: Facultad de Ciencias Astronómicas y Geofísicas de la U.N.L.P. - Paseo del Bosque - 1900 La Plata.