

by performing the fit directly to the K-band data, enabling us to take the observational uncertainties more rigorously into account which proves to be crucial for the successful analysis of these faint objects.

The interpretation of the data is not straight forward, however, since the star appears to be significantly bluer than expected for its metallicity leading to very high temperatures. We hope to be able to resolve this problem and its subsequent detailed analysis.

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STUDY OF THE IR EXCESS IN EARLY TYPE STARS. AN EXPANDING ATMOSPHERIC MODEL WHICH INCLUDES A CHROMOSPHERIC REGION

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We constructed an expanding atmospheric model where we have assumed the existence of a chromosphere. We applied the Feautrier elimination scheme in order to solve the continuum radiative transfer equation assuming a spherically symmetric medium in LTE. We made a detailed analysis of the different continuum opacity sources that contribute to the emergent flux and we determined the continuum formation regions. Further, we found that when the IR continuum formation region contains the chromosphere, the standard limb-darkening law fails.

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CATALOGUE OF OB TYPE STARS

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This catalogue was essentially carried out to analyze observational properties of OB-type stars from both, broad band photometry and spectroscopic classification.

We compiled a selection of photometry, spectral classification and other quantities (when available) such as rotational velocities, binarity, visual variability, and suspicions about both binarity and variability. However a question about data quality deserves some words.

We have made a data selection based upon single papers from well ranked observers (a very subjective sense) and, on the other hand, a lot of data were extracted from available catalogues. But this is fully insufficient to guarantee that homogeneity is kept constant across the overall catalogue. Although we have put special emphasis on this aspect we are aware that a lot of problems remain yet.

Handling information is a prominent and dramatic problem when related to the sources of the data because sometimes one must sacrifice quality to get quantity. One has a lot of sources of information in the case of very bright stars (e.g., at V above 7th magnitudes) so a possible selection of authors (once again, many times under a very subjective position) may be easily made. But in the case of the faintest stars the restrictions in the list of available authors are really strong and no more than a few authors remain. The overall catalogue covering a magnitude range from $V = -1$ to $V = 14$ magnitudes is not uniform (there are many authors for bright stars, a few ones for the faintest ones). In an attempt to give information about data reliability we include the number of different nights each star was observed, but this is not always possible because many authors do not inform about this.

POLARIMETRIC STUDY OF THE IC 2944 STELLAR AGGREGATE

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IC 2944 is a compact stellar aggregate centered on HD 101205 ($l = 294.8^\circ$, $b = -1.7^\circ$), which is embedded in an extensive H II region. Within the Galaxy it is located at the inner border of the Carina spiral feature.

We present multicolor polarimetric measures for 30 stars in $UBVRI$ bandpasses, belonging to the rich stellar aggregate IC 2944. This study intends to determine the amount and direction of the linear polarization towards the aggregate. By observing the amount of the interstellar polarization in those bandpasses, the wavelength of maximum polarization is computed and then analyzed its relation to the optical properties and characteristic particle-size distribution of the grains responsible of the polarization.

The 30 stars observed polarimetrically were selected among those observed photometrically by Ardeberg & Maurice (1980, A&AS, 39, 325).

Using a technique modelled after Marraco, Vega, & Vrba (1993, AJ, in press) we have separated the foreground contribution of both the color excesses and the polarizations.

We choose stars considered to belong to the aggregate but being just at the front border. We call them "frontside" stars. They are used to model the contribution of the *foreground* excess and polarization that subsequently will be removed from the remaining member stars to determine the *intracluster* values of these quantities.

We can decide that the observed polarization is not intrinsic, but rather is due to the interstellar material.

We find that IC 2944 follows the general trend of the polarization (projected magnetic field) directions in the zone. We also find that the intra-cluster component of the magnetic field direction is randomly distributed.

DIFFERENTIAL *uvby* PHOTOMETRY OF SOUTHERN Be STARS. HIGHLIGHTS FROM THE RECENT ANALYSIS OF LTPV DATA

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We present preliminary results of an analysis of 8 years photoelectric monitoring of 19 southern Be stars, obtained in La Silla by the ESO Working Group "Long Term Photometry of Variables" (LTPV) led by Dr. Chris Sterken, Brussels. In our sample we detected the following main classes of Be star variability: eclipsing binaries (1 certain and 1 suspected case: V505 Mon and FX Lib); eruption-like events (3 cases: 27 CMa, ω CMa and β_1 Mon); long-term variations with amplitude $\geq 0^m.1$ and time scales years to decades (8 cases: 27 CMa, ω CMa, MX Pup, FX Lib, V923 Aql, V1294 Aql, ϵ Cap and PP Car), random short-term variations with time scales days to weeks (12 cases: V505 Mon, 10 CMa, ω CMa, FY CMa, MX Pup, FX Lib, HD 173219, V923 Aql, ϵ Cap, HR 2545, o Pup and PP Car); coherent oscillations with periods between 8 and 800 days (5 cases: 10 CMa, FY CMa, ϵ Cap, HR 2545 and o Pup) and incoherent oscillations with periods 3–30 days, lifetime ~ 10 cycles (3 cases: ω CMa, ϵ Cap and HR 4074). The three stars λ Eri, HR 2142 and HR 3858 remained nearly constant within $\lesssim 0^m.05$.

As highlights of our analysis we may mention: (i) for the 54^d eclipsing binary V505 Mon a "supercycle" was detected: the shape of the light curve varies with a 1300^d period; (ii) 27 CMa showed rapid fadings with reddening, probably

due to the ejection of dust envelopes; (iii) in HR 2545 a coherent oscillation with a 14^d3 period was detected, which is present only in γ and b , not in the remaining bandpasses at shorter wavelength.

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OSCILLATORY LUMINOSITY PROFILES AND PULSARS

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Several very interesting, and not well understood, astrophysical scenarios are associated with a periodic emission of radiation from collapsed compact objects. Pulsars are the most common representative examples of this phenomenon. The rapid variation of luminosity of a young supernova remnant, generally interpreted as due to its rotation, can be alternatively explained as radial oscillations of the compact object.

We used the method proposed by Herrera and collaborators in 1980 to study general relativistic spheres to obtain models describing non-static radiating spheres starting from well known static equations of state.

The present work explores the diffusion limit for the radiation field, with inter-relations between oscillations of the surface of compact objects and their pulsating luminosity profiles.

SOUTHERN RS CVN SYSTEMS UBVRI PHOTOMETRY

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The RS CVn are binary systems including dwarf stars from the main sequence, sub-giants or giants of the F, G or K type. Photometric fluctuations can be attributed to large scale photospheric spots discretely distributed on the stellar surface. Magnetic fields associated to these spots are assumed to heat the chromosphere's transition zone and the corona, which becomes evident by emissions in the chro-