

DETAILED STUDY OF OPEN CLUSTER PIS 20

R. A. Vázquez, J. M. Will, P. Prado y A. Feinstein
FCAGLP - PROFOEG

The very young open cluster Pis 20 has been analyzed by employing CCD UBVR photometry. Down to $V = 19$ mag, new blue and faint members were found. With them we obtain a better definition of the lower cluster main sequence. Using the fitting method we situate the cluster at a distance of $d = 3600$ pc ($V_0 - M_V = 12.80$). The main color excess value is $\langle E(B-V) \rangle = 1.24$ mag. In analyzing observed characteristics and spatial positions of the bluest cluster stars we conclude that the star WR 67 has a good chance to be a cluster member. In that case the mass of its progenitor should be greater than $50 M_{\odot}$ according to evolutionary models. From isochrone fitting the age of Pis 20 is 5.1×10^6 y. We discuss the cluster mass spectrum whose slope, within the observational uncertainties, appears to be similar to a Salpeter law. We notice that high WR/OB and WC/WN number ratios are present not only within the cluster itself but also in the association where Pis 20 is situated. The cluster distance derived here prevents to assume any spatial connection between Pis 20 and the supernova remnant MSH 15 - 52. The total cluster mass is around $600 M_{\odot}$.

UVBRI IMAGING PHOTOMETRY OF ETA CARINAE REGION

M. Tapia, M. Roth, R. A. Vázquez y A. Feinstein
FCAGLP - PROFOEG

CCD Images of a large area of the Eta Car Nebula are presented. The area covers some 60 by 30 arcmin. The images presented here were taken with a Tektronix 1024 x 1024, blue sensitive CCD on the 1m Swope Telescope of the Las Campanas Observatory. The images are sampled to .67 arcsec per pixel. The average seeing during the observing run was of the order of 1.3 arcsec. Conditions were, in general, not photometric but individual frames have been calibrated with previous photometry reported in several papers by Feinstein and Co-workers. Our survey has a dynamic interval of some 8 magnitudes and includes stars to a limit of $m=20$ in B and $m=18$ in U, R and I. Preliminary photometric calibrations indicate that we are observing the main sequence down to a mass limit approximately $0.5 M_{\odot}$. When combined with JHK photometry (see Roth et al., this meeting) we expect to determine in greater detail the characteristics of the interstellar reddening, based on a much bigger sample of stars and colors than currently available. These data information will also enable us to construct more accurately the Initial Mass-Function of this young region.

JHK' IMAGING PHOTOMETRY OF TR 14, TR 15 AND TR 16

M. Roth, M. Tapia, R. A. Vázquez, A. Feinstein y P. Prado
FCAGLP - PROFOEG

We have observed the areas associated with the young open clusters Tr 14, Tr 15 and Tr 16 of the Eta Carinae Region in the near-infrared (J, H and K'), using a NICMOS 3 array detector (256 x 256 pixels) and the Swope 1m telescope of Las Campanas Observatory. The images are sampled to 0.45 arcsec per pixel under an average seeing of 1.5 arcsec. Calibration of these images was performed using the magnitudes obtained for individual stars with existing single-detector photometry. The limiting magnitudes are, approximately, 15 in J and H, and 14.5 in the K' filter, thus greatly extending the available data base.

These data will be used with our UBVRI CCD photometry (Tapia et al., this meeting) to determine in greater detail the interstellar and intra-cluster extinction laws and to derive individual reddenings. This will allow us to obtain accurate distances, bolometric magnitudes, photometric spectral types, HR diagrams and the Initial Mass Function of each cluster. A number of very red sources have been detected and their nature will be discussed.

ESPECTROSCOPIA CCD EN EL CUMULO ABIERTO NGC 6530

G. Bosch¹, V. Niemela² y N. Morrel³

- 1: FCAGLP.
- 2: FCAGLP - IAFE.
- 3: FCAGLP - CONICET.

En este trabajo se presenta la revisión de la clasificación espectral de estrellas en NGC 6530 utilizando técnicas de reducción de espectros digitales que permiten discriminar la contribución nebulosa del espectro estelar observado. Este aspecto es de esencial importancia debido a la presencia de la nebulosa M 8, con líneas de emisión muy intensas. Con espectros en alta dispersión se analizan también las velocidades radiales de estrellas de tipo O y B.