We present a discussion of the technical descriptions of the program and a comparison with velocity data existing in the literature.

Perryman, M.A.C. et al. 1989, ESA SP-1111, vol I-III

INVESTIGATION ON THE REGION OF THE OPEN CLUSTER TR 14

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We present $UBVRI$ CCD imaging photometry for stars down to approximately $V = 19$ mag in the area of the very young open cluster Tr 14. With the aid of other researchers' studies in the region we investigated the nature of some stars above the cluster sequence and the cluster stability.

– We show, for the first time, the extended and well populated main sequence of Tr 14.

– The fitting method indicates a cluster distance of d = 3100 pc and using a fit of isochrones among its massive members its age is $1.5 \pm 0.5 10^6$ y.

– We draw the attention on stars which, from the observed magnitude-spread at constant color, could be stars in an early stage of evolution. In that case the process of star formation in Tr 14 is continuous and a duration of about 510^6 y is deduced for it.

– We confirm the existence of an anomalous extinction law in the area if it is interpreted in terms of the $UBVRI$ photometry. The reddening distribution across the cluster surface follows the general trend described by other authors. That is, it increases to north and southwest. The Tr 14 core is clearly less affected by reddening. In the closer surrounding areas patchy structures having $E(B-V) > 0.7$ are observable along the edge of the dust lane. The differential reddening effect is then mainly produced in the peryphery of the core.

– HD 93129AB is resolved into the two components separated by 2.8 arcsec from each other. The ΔV difference and color indices of both stars are reasonably the expected from their evolutionary status. Components HD 93161-East and HD 93161-West are separated by 2.02 arcsec. A same spectral type characterizes these two stars that, in turn, show similar colors and magnitudes.

– The cluster initial mass function has a flat slope. At the same time, we found a spatial variation of the cluster IMF, which could be explained by mass segregation in the star formation process.

– The cluster youth and its compact appearance seem to confirm that it is far from virial equilibrium.

– The observed total cluster mass is around 2000 $M_\odot$ and its core contains about 40% of the total.

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SPECTROSCOPIC OBSERVATION OF NGC 2442 WITH THE CASLEO TELESCOPE

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The 2.15-m CASLEO telescope, in El Leoncito (Prov. of San Juan), was used to observe the SBb galaxy NGC 2442 with the REOSC spectrograph. The detector was a 1024 × 1024 24 μm Tektronix CCD. At the f/8.48 Cassegrain focus of the telescope, the image scale was 11″/mm or 0.″26/pixel. The lines H_α, [N II] and [S II] were observed placing the 3.′3 × 348″ slit at six different positions over the optical image of the galaxy. NGC 2442 was observed previously (Bajaja et al. 1995) in the CO lines with the SEST millimeter telescope, in the ESO Observatory at La Silla (Chile), obtaining maps for the molecular hydrogen (H_2) distribution and velocity field with an angular resolution of 43″. The purpose of the optical observations was the correlation of the H_2 (necessary for star formation) with the optical emission regions (connected with the effective star formation and evolution).

Preliminary results show, in general, a good correlation of the radio and optical intensities and velocities. In particular, at the center of the galaxy where the CO lines are very broad (~ 550 km/s) and the rotation curve is very steep, the optical lines, on the nucleus, show a double peak. These features would indicate the presence of a fast rotating ring around a mass which, for an inclination angle of 24° and a distance of 15.5 Mpc, would be about 2×10^{10} $M_\odot$. Furthermore, the line ratios in the nucleus indicate that it is a LINER confirming the suggestion by Shobbrock (1966) that the nucleus of this galaxy is active.

Bajaja, E., Wielebinski, R., Reuter, H.-P. et al. 1995, A&AS 114, 147
Shobbrock, R. 1966, MNRAS 131, 151

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