CCD PHOTOMETRY OF THE YOUNG OPEN CLUSTER NGC 1962-65-66-70

A. Feinstein, W. Seggewiss
R. Vázquez, and J.M. Will

Observatorio Astronómico, Argentina, and
Universitätssternwarte, Germany

The group of stars situated in the region of the nebulosities called NGC 1962-65-66-70 (named also N144) was observed photoelectrically at La Silla in *BVRI* with a CCD. The analysis of the data indicates that all stars belong to a unique cluster with a main sequence up to $V = 12$ mag. The brightest stars are of O spectral type. There are also 2 Wolf-Rayet stars and 2 supergiants of spectral types F and M, respectively. With the distance of the Large Cloud and adjusting the isochrones calculated with mass loss, the age of the group becomes $\log t = 6.9$. Its diameter is of the order of 70 pc, three times the extension of the double cluster h and χ Persei.

THE ONSET OF CHROMOSPHERES AND CORONAS AT LATE A-TYPE STARS

R. Freire Ferrero

Observatoire Astronomique de Strasbourg, France

The definition of the spectral type along the main sequence where chromospheres appear is of crucial importance for the study of the stellar structure and the chromospheric heating mechanisms.

We report here new evidences for the presence of chromospheres in late A-type stars and early-F types stars established from high resolution *IUE* observations of Ly α line cores.

A very careful reduction method was developed and used in our *IUE* observational star program to eliminate the geocoronal Ly α emission and to improve the very low *IUE* S/N ratio.

The observed emission line cores can be interpreted as chromospheric, through semiempirical chromospheric modelling and spectral line computations. The atmospheric structure for these stars will be the same as for the Sun: photosphere, chromosphere, transition zone and corona.

We compare our results with those of X-ray given by the Einstein and ROSAT satellites to obtain some insights on chromospheric heating mechanisms for late A-type stars.

PARTIAL REDISTRIBUTION OF RADIATION FOR THE 2 AND 3 LEVEL ATOM PLUS CONTINUUM

R. Freire Ferrero

Observatoire Astronomique de Strasbourg, France

and

Lydia Cidale

Observatorio Astronómico de La Plata, Argentina

From the statistical equilibrium equations, we deduce the algebraic expressions for the line source function as well as that of the emission coefficient.

In addition, we establish some corrections to the precedent formula in this subject.

Our analysis gives evidence of the complexity of real transfer problems when we approach them by simplified atomic models.

A NEW FORMULATION OF THE LIMB-DARKENING EFFECT

R. Freire Ferrero

Observatoire Astronomique de Strasbourg, France

The limb-darkening method used to derive a temperature distribution in the solar case is re-examined in view of a new algebraic form of the general solution of the radiative transfer equation (RTE) in the plane parallel case.

We present preliminary results of the $S_\nu(t_\nu)$ function for some wavelengths in the visible range and we compute the LTE $T(t_\nu)$ distribution. Then we compare and discuss our results in relation to other solar temperature distribution in the literature.

METALLICITIES OF OLD OPEN CLUSTERS LOCATED IN THE THIRD GALACTIC QUADRANT

D. Geisler

Cerro Tololo Inter-American Observatory, Chile

J.J. Clariá

Observatorio Astronómico de Córdoba, Argentina

and

D. Minniti

Steward Observatory, University of Arizona, U.S.A.

One hundred and thirty six stars associated with nine old open clusters located in the third galactic quadrant have been investigated with the Washington system. The data yield a luminosity