THE PICO DOS DIAS SURVEY OF YOUNG STELLAR OBJECTS

Carlos A.O. Torres[1], Germano R. Quast[1], Ramiro de la Reza[2], Lício da Silva[2], Jacques R.D. Lépine[3], and Jane Gregório-Hetem[3]

A survey has been undertaken at the Pico dos Dias Observatory to identify young stellar objects in the southern hemisphere without spatial bias. A sample of 4041 sources from the IRAS Point Source Catalog was selected by choosing those with flux ratios at 12, 25 and 60 μm within the limits:

$$-0.95 < [12]-[25] < 0.11$$
$$-0.95 < [25]-[60] < 0.32$$

The observing list was formed by examining the positions of the sample sources on the images of the Digitized Sky Survey (DSS) selecting sources with stellar-like objects brighter than 14th magnitude within the *IRAS* error ellipses of 3.3σ. Known planetary nebulae, quasars and Seyfert galaxies were excluded, as well as HBC young stellar objects. But stars brighter than 12th magnitude near the error ellipses were included. The sample thus formed has 500 sources south of 30°N.

Spectra with 0.07nm resolution of the associable optical objects have been obtained for 99% of the sample with the coudé spectrograph of the 1.6-m telescope near Hα and including the 670.7nm LiI line. The survey resulted in the discovery of 50 new T Tauri stars (11 more depending on further confirmation), 110 possible Herbig Ae/Be stars. Surprisingly, also 10 lithium-rich giants and 3 possible post-fuori objects turned up. For 5% of the sample no useful spectra were obtained due to the faintness of the optical objects. At the beginning of the survey several objects not belonging to the sample (no object brighter than 14th magnitude on the DSS) were observed, resulting in the discovery of another 4 possible Herbig Ae/Be stars and 12 T Tauri stars, plus 13 faint possible T Tauri stars awaiting confirmation.

[1]Laboratório Nacional de Astrofísica/CNPq/MCT, Brazil

[2]Observatório Nacional/CNPq/MCT, Brazil

[3]Instituto Astronômico e Geofísico da Universidade de São Paulo, Brazil

THE OPEN CLUSTER NGC 2354

J. Ahumada[1,2,4] and E. Lapasset[1,3,4]

We present the preliminary results of a CCD UBVR photometric study in an area of about 10′ centered on the open cluster NGC 2354. The main sequence and a well-defined turnoff can be observed on the color-color and color-magnitude diagrams. A fit with theoretical isochrones gives a cluster age of about 1 Gyr, somewhat larger than the values derived in previous investigations. A cluster reddening of $<E(B-V)> = 0.15 \pm 0.03$, likely variable across the cluster area, and a distance of 1445 pc are derived. An appreciable population of blue-straggler candidates is also observed; among them is the eclipsing binary D266.

[1]Observatorio Astronómico, Universidad Nacional de Córdoba, Argentina

[2]Secretaría de Ciencia y Tecnología, Universidad Nacional de Córdoba, Argentina

[3]CONICET, Buenos Aires, Argentina

[4]Astrónomo visitante, Complejo Astronómico El Leoncito, operado conjuntamente por CONICET y las Universidades Nacionales de La Plata, Córdoba y San Juan

EVOLUTION AND THEORETICAL BLUE EDGES OF DB WHITE DWARFS IN THE CANUTO AND MAZZITELLI THEORY OF CONVECTION

L.G. Althaus[1] and O.G. Benvenuto[1]

We calculate the evolution of Carbon - Oxygen white dwarf models with masses between 0.4 and 1 $M_\odot$ and helium surface layers (DB white dwarfs). The calculations were made by means of a detailed and updated evolutionary code in which the new OPAL radiative opacities were included. In particular, convective energy transport was treated in the framework of the new theory of convection developed by Canuto and Mazzitelli (CM) (1991). This model, which has *no* free parameters and includes the whole range of eddy sizes necessary to describe a nearly inviscid fluid such as a stellar interior, has been successfully tested in different stellar contexts and represents a substantial improvement with respect to the mixing length theory of convection employed in almost all

[1]Facultad de Ciencias Astronómicas y Geofísicas, UNLP, La Plata, Argentina