AN INVESTIGATION OF THE CEPOB6 ASSOCIATION

ROBERT KAMBEN
University of Tromsø, Norway

AND

EVSTIGNEEVA EKATERINA
St. Petersburg State University, Russia

1. Introduction

O and B stars are not distributed randomly on the sky, but instead they are concentrated in loose groups, that are called 'OB associations'.From dynamical point of view it follows that OB assotiations should be young ($\leq 50Myr$), a conclusion supported also by the ages derived from color- magnitude diagrams. OB associations are the stellar groupings of low density (usually less then 0.1 $M_{\odot}pc^{-3}$) such that they are likely to be unbound. Their projected dimensions range from $\approx$ 10 to$\approx$ 100 pc. Observations of molecular cloudes indicate that these groups are usually located in or near starforming regions, and hence are prime sites for the study of star formation processes and of the interaction of early-type stars with the interstellar medium. In the context of star formation a detailed examination of the stellar content, structure, and kinematics of OB associations allows us to address the following fundamental questions: What is the initial mass function? What are the characteristics of the binary population? What causes the distinction between the formation of bound open clusters and unbound associations? How is angular momentum redistributed during star formation? What is the resulting distribution of rotational velocities of stars? etc.

2. Cep OB6 assooiation

We have investigated the CepOB6 association. This association has been recently discovered on the basis of the Hipparcos data [2].The center of this association almost coincides whith the position of classical cepheid δ Cep. It occupies the region $100^0 < l < 110^0$ and$-4^0 < b < 3^0$. The aim of the investigation:
-To study distribution of interstellar dust in this region.
-To search for new members of the association on the basis of obtained photometric data.

We have chosen 18 stars from this association. Observations were made with the 63 cm telescope during period of 01.09.99 - 08.09.99. We used Vilnius photometric system. Extra-atmospheric reductions of observations have been made using program package EXATMOS developed at the Institute Theoretical Physics and Astronomy. Classification of stars have been carried out using program CLASS developed at the Institute of Physics. The program CLASS derives MK spectral types and calculates color excesses, intrinsic color indices and distances of stars.

The distribution of interstellar matter is shown in Fig.1. After HIPPARCOS data, filled squares are stars that are association members, and empty squares indicate non members. About 0.1 kpc from Sun there is interstellar dust cloud. Distribution of interstellar matter in this region is non uniform. At a distance of the association interstellar extinction varies in the range of 0 - 0.6 mag. H-R diagram for observed stars is plotted in Fig.2 .It is seen on this diagram that the majority of stars are located in the left lower region of the diagram along the main sequence. But one star that after HIPPARCOS data is not in association was found perfectly lying in it, therefore belonging to it. And one star that after HIPPARCOS data is in CepOB6 in our data falls out. Three most luminous members are older and therefore go to the right side of the diagram.

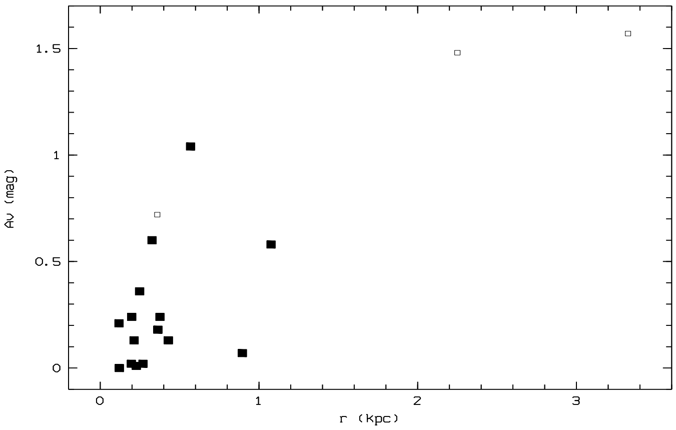

Figure 1. The distribution of interstellar matter in the region of the CepOB6.

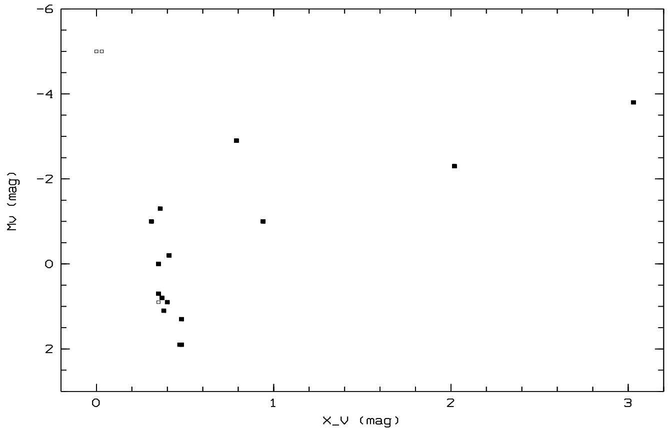

Figure 2. H-R diagram for the CepOB6.

References:

1.The Origin of Stars and Planetary Systems: Proceedings of the NATO ASI, eds. C.J.Lada, N.D.Kylafis, Volume 540, 1999 (in print).

2.De Zeeuw P.T. et al, Astron.J., 117, 354-399 (1999)