A Photometric Study of V798 Cygni

Chulhee Kim

Department of Earth Science Education, Chonbuk National University, Korea

Michael D. Joner

Department of Physics and Astronomy

Brigham Young University, Provo, UT 84602

New photometric ($uvby\beta$) observations of the dwarf Cepheid V 798 Cyg are described. A reddening value, $E(b-y) = 0^{m}.122$ and [Fe/H] = 0.21 are derived from the photometry. Intrinsic $(b-y)$ and c_1 values used in conjunction with a model-atmosphere grid yields a mean effective temperature, $\langle T_{\rm eff}\rangle = 7210$ K, and a mean surface gravity, $\langle \log g\rangle = 3.60$. The pulsation theory and stellar model sequences yield mass of $2.4\,M_{\odot}$ and age of 0.63 Gyrs. It was found that V 798 Cyg is one of very normal dwarf cepheids, at least, according to the values of atmospheric and physical parameters except peculiar behaviour of light curve.

AR Lac 광도곡선과 2차 광도 변화에 대한 연구

박 홍 서

한국교원대학교

김 희 수

공주대학교

Golay는 그의 저서 "Introduction to Astronomical Photometry"에서 광전측광계의 특성에 영향을 주는 여러 요소 중에서 온도 효과와 별의 색지수 효과를 "Other Function"으로 분류하고 있다. 온도 효과는 Park과 Chen(1989)에 의하여 차등관측에서 그 효과를 정량적으로 분석할 수 있는 가능성을 보여 주고 있다. 또 한 별의 색지수에 의하여 일어나는 효과와 대기의 효과는 근본적으로 측광계의 대폭역과 평균파장에 관계있으며, 이 때문에 대기의 특성 변화에 따른 분석이 요구된다.

1984년의 BD + 44° 4044 (A2)와 BD + 37° 3711 (G5)의 관측 결과 sec Z와 차등등급 (Δm)이 보여 주는 변화를 기초로 한 Johnson UBV system에서의 변화는 두 별을 흑체라고 가정하였을 때 B에서 유효파장이 41.6 A/sec Z 변화하는 결과를 제시하고 있다.

Multicomponent Models for the Dynamic Evolution of Globular Clusters*

Hyung Mok Lee

Department of Earth Sciences, Pusan University

The Fokker-Planck equation has been integrated to produce a series of numerical models describing the dynamical evolution of globular clusters with a mass spectrum. Three-body binary heating is included to obtain postcollapse evolution and a steady Galactic tidal field is imposed. Since no direct interaction between stars(such as tidal captures or mergers) are considered, the models are appropriate for globular clusters with a relatively low mass ($M \lesssim 10^5\,M_{\odot}$). A wide range of initial mass function is considered and the evolution of the mass function is examined. The mass function begins to change appreciably during the postcollapse expansion phase due to the selective evaporation

of low mass stars through the tidal boundary. One signature of highly evolved cluster is thus a significant flattening of the mass function. The age measured by the half-mass relaxation time increases very rapidly from a characteristic value of ~ 100 at the final stage of disruption. This appears to be consistent with the sharp cut off near 10^8 yr in the distribution of the half-mass relaxation times for the Galactic globular clusters. We also consider the evolution of clusters containing massive dark remnants (i.e., white dwarfs or neutron stars). The efficient formation of three-body binaries among the degenerates and the relative flattening of the luminosity profile compared to the density profile, lead to postcollapse models with a sufficiently low concentration that the core may be resolvable.

* A research supported in part by the non-directed research fund of the Korea Research Foundation (1989).

Velocity Distribution of Dark Matter Galactic Halos

K.S. Oh

Department of Astronomy and Space Science
Chungnam National University, Daejeon, Korea

G.R. Blumenthal, S. M. Faber, J. R. Primack

University of California, Santa Cruz, USA

We investigate the response of nondissipative dark matter galactic halos during the dissipational collapse of the baryonic matter in spiral galaxy formation, focusing on the velocity distribution of the dark matter in the disk of a galaxy like the Milky Way at the solar radius. We use N-body simulations with the total mass and z-component of angular momentum conserved. The initial distribution of dark matter and baryonic particles is a homogeneous mixture based on a King model. Then we force the baryonic matter to contract, forming the final luminous components of the galaxy, namely the disk and, in some cases, a bulge and central point. Both slow and fast growth of the luminous components are considered. Relatively flat rotation curves are easily obtained for reasonable values of the free parameters. The velocity distribution of dark matter particles in a reference frame rotating slowly about the galaxy center in the plane of the disk is similar to a Maxwellian, but it is somewhat boxier, being flatter at the peak and truncated in the tails of the distribution. We tabulate parameters for the best-fitting Maxwellian and modified-Maxwellian distributions. There is no significant difference between slow collapse and fast collapse for all these results. We were unable to detect any effect of disk formation on the z-dependence of the dark matter density distribution.

CO Observations of B133 and B134

Seung Hong Park[1], Hyun Goo Kim[2], Yong Sun Park[2]
and Seung Soo Hong[1]

[1]*Department of Astronomy, Seoul National University*
[2]*DRAO, Institute of Space Science and Astronomy*

With the 14 m radio telescope at DRAO and 4 m at Nagoya University, we have made detailed maps of ^{12}CO and ^{13}CO emissions from two Barnard objects B 133 and B 134. Usual LTE analyses are