

as the increase of M/L in this dark matter. The space density distribution of this dark matter shows that r_c of the dark matter is smaller than r_c of the galaxy.

A Portable Photoelectric Photometer System for Small Telescopes

강 용 우 · 안 홍 배
(부산대학교)

A portable photoelectric photometer system is developed for the observations with small telescopes. We used photo-transistor and three-color photosensor for detecting parts. The faint signals from the sensor are fed to a DC amplifier attached to the photometer before being sent to computer or chart recorder for data recording. Several test observations of bright stars using 15 cm refractor at Pusan University show that our system can be used to observe stars brighter than 2.5 magnitude. We discuss the ways of obtaining better sensitivity in the future.

천문대 후보지에서의 기상 및 천체관측 결과분석

김강민 · 전영범 · 이재한 · 심경진
(천문우주과학연구소)

천문우주과학연구소에서는 전국의 80여개 산을 답사한 결과 덕가산(강원도 원성군 소재; 702m), 보현산(경북 영천군 소재; 1,124m), 화왕산(경남 창원군 소재; 757m)과 기존의 소백산(충북 단양군 소재; 1,360m), 네곳을 1.8m 광학 망원경 천문대의 1차 후보지로 선정하였다.

이들 후보지에서 1989년 4월부터 1년간 기상관측을 수행하였고 산정에서의 천체관측은 1989년 10월에서 11월에 걸쳐 수행하였으며 이를 분석한 결과는 보현산이 다른 산에 비해 전체적으로 관측환경이 양호함을 보여주고 있다.

秋季學術大會

일시 : 1990年 10月 19日~20日

장소 : 전남대학교 사범대학 4호관

<研究論文>

Dynamical Evolution of Globular Clusters Due to Diffusion and Tide

K.S. OH

(Department of Astronomy and Space Science Chungnam National University, Daejeon 305-764)

D.N.C. Lin and S. Aarseth

(Department of Astronomy and Astrophysics Santa Cruz, University of California, USA)

We investigate the tidal evolution of globular clusters subject to various degrees of internal diffusion processes.

Our results indicate as follows: 1) In the case of negligible diffusion, clusters are tidally truncated to the theoretical tidal radius at a perigalacticon. 2) There is no apparent orbital phase-dependence of the tidal radius for clusters with eccentric orbits. 3) In timescales of moderately efficient two-body relaxation, diffusion processes significantly modify the structure of outer regions such that the limiting radius is likely to be comparable to the tidal radius at an apogalacticon. 4) Galactic tidal torque gives a rise to the isotropy in velocity dispersion of the outer cluster region. For relaxed clusters, the velocity dispersions are likely to be isotropic in the cores, anisotropic in the envelopes, and isotropic near the limiting radii. 5) Stars with direct orbits are less stable so that the prolonged tidal interaction can lead to an apparent retrograde rotation in the outer cluster regions. For anisotropic clusters, the effect of tidally induced retrograde rotation likely to be extended into relatively small radii by stars of highly eccentric orbits.

Successive Merging of Stars in Dense Stellar Systems

Lee, Hyung Mok

(Department of Earth Sciences, Pusan University)

In dense stellar systems, close encounters between stars can lead to mergers if the velocity dispersion is sufficiently smaller than the escape velocity from the stellar surface. Simple theory describing evolution of the mass function in the presence of successive merging is presented. This process transforms low-mass stars into high-mass stars in the 'merging' time scale. Eventually a significant fraction of the stellar system's core mass can be locked into in a small number of high mass stars, provided that stellar evolution is slower than the rate of merging. The mass function becomes a power law when the merging cross section is assumed to be a power law on the stellar mass. The implications of the simple analysis for a realistic stellar system are discussed. However, it is not yet clear whether a central black hole can be formed through this process in nuclei of galaxies because of many other uncertainties.

Spherically Symmetric Radiation Hydrodynamics near Eddington Flux

Park, Myeong-Gu

(Kyungpook National University)

Time-independent spherical accretion of gas onto the surface of compact star is studied. The previous, simplified, special relativistic treatment is generalized under general relativity. The flow velocity is allowed to approach the speed of light and the gravitational field can be arbitrarily strong if the field can be represented by the Schwarzschild metric. This general relativistic effects become increasingly important when the flux is near Eddington limit.

Results in current literatures are found to be incorrect in many circumstances. When the flux is sufficiently close to the Eddington limit, the flow velocity increases with decreasing radius far from the compact star, reaches a maximum at an intermediate radius, and decreases at small radii. If the external luminosity (luminosity not related to the accreting gas) is centralized, steady accretion is possible only when the luminosity at infinity does not exceed 76% of the