

구상성단 M22의 VI CCD측광

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구상성단 M22(=NGC 6656)에 대한 VI CCD측광을 수행하였다. 각 등급은 Johnson-Cousins계를 통해 표준화하였고, 이를 통해 V대 V-I 색 등급도를 구하였다. V의 한계등급은 약 19^m으로 주계열전향점 (17.^m5)보다 약 1.^m5 가량 어둡다. 전반적인 색-등급도는 어두운 별의 밀집이 심한 16.^m7등급아래를 제외하고는 이전의 연구에 비해 각 계열이 뚜렷하게 정의된다.

적색거성열은 이미 여러 연구에서 드러나 바와 같이 철족 원소를 포함한 여러 금속 원소의 불균질성에서 예견되는 ω Centauri와 같은 넓은 거성열을 보이지 않고, 비교적 폭이 좁고 뚜렷한 계열을 이룬다. 또한 이전의 연구에서는 잘 보이지 않던 몇 개의 점근거성열별도 $V=11^m \sim 12.^m5$ 사이에서 비교적 절 드러나 보인다. 적색거성열에는 3개의 deficient gap($V=13.^m7, 14.^m6, 15^m$)이 보인다.

청색수평열은 뚜렷이 보이지만 적색수평열의 존재는 분명하지 않다. 청색수평열에서도 $V=14.^m6$ 에서 뚜렷한 deficient gap이 드러나 보인다. 청색수평열보다 약 1.^m5아래인 $V=16.^m5$ 에서 17^m사이, $V-I=0.^m2$ 에서 0.^m3사이에는 Moehler et al.(1995)이 언급한 바와 같은 B형준왜성으로 보이는 별이 3개 존재한다.

A NEW TIME-SCALE FOR TWO-COMPONENT GLOBULAR CLUSTERS

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Two-component models (normal star and degenerate star components) are the simplest realization of clusters with a mass spectrum because the high mass stars quickly evolve off while low mass stars survive for a long time as main-sequence stars. We examine the core-collapse times of isolated globular clusters using two-mass-component Fokker-Planck models. With an initial condition of the Plummer model, we empirically find that the core-collapse times of clusters are well correlated with $(N_1/N_2)^{1/2}(m_1/m_2)^2 t_{th}$, where N_1/N_2 and m_1/m_2 are the light to heavy component number and mass ratios, and t_{th} is the half-mass relaxation time scale. To explain this correlation, we introduce a time scale for the

pre-collapse evolution of two-component clusters, $t_2 \propto (N_1/N_2)^{3/2}(m_1/m_2)^{8/3}t_{ch}$. This new time scale has been obtained by comparing the velocity dispersion change per unit time averaged over the entire cluster to the central velocity dispersion. Both core and global equipartition have been included in its derivation.

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TWO DIMENSIONAL DECOMPOSITION METHOD OF THE LUMINOSITY DISTRIBUTION FOR THE SPIRAL GALAXIES

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We have developed two-dimensional decomposition method which is suitable to understand the luminosity distribution of spiral galaxies. We try to apply our decomposition method to some spiral galaxies. The comparison of our two-dimensional analysis with one dimensional decomposition will be discussed.

CO OBSERVATIONS OF A REGION IN CANIS MAJOR AND MONOCEROSUS CONSTELLATIONS

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A large scale $^{13}\text{CO}(J=1-0)$ survey was made for a region in Canis Major and Monocerosus constellations, which cover in $208^\circ \leq l \leq 230^\circ$ and $-20^\circ \leq b \leq 10^\circ$ with a $8'$ spacing by using the 4 m radio telescope of Nagoya University. In total 31500 points were observed, covering a 560 deg^2 area. Several molecular complexes (CMa OB1, CMa OB1-West, Mon R2 and a part of Orion B in the Local arm, and Maddalena cloud and S 287 in the Perseus arm) are included in the observing region. The open clusters and the massive clouds in the Local are well aligned to the Galactic belt, which is declined about -50° from Galactic plane. The age distribution of the open clusters in the arm seems to show the propagation of the star formation from the north-east to south-west of the studing region. While no such tendance is shown in the Perseus arm. YSO candidates are presented in the studing region from IRAS point sources catalog on the basic of Beichman's crit The star formation