

We have analyzed the radial velocity data of Coma cluster of galaxies. The line-of-sight velocity contour is found to be non-spherical. The velocity dispersion at large distance is greater along the major axis of the galaxy distribution than along the minor axis. If the gravitational potential is oblate-like, this result indicates that the orbits of galaxies are predominantly non-radial (between isotropic and circular) while the orbits are predominantly radial if the potential is prolate-like. The major axis of the velocity dispersion contour coincides well with a line connecting the centers of Coma and A1367 clusters of galaxies.

Tidal Density of Globular Clusters and Galactic Mass Distribution

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The tidal densities (defined as the mean density within tidal radius) of globular clusters and dwarf spheroidals are analyzed to explore Galactic mass distribution and internal dynamics of clusters. It is found that the "observed" King's tidal radii should be systematically larger than the "actual" values in order to be consistent with simple singular isothermal model for Galaxy, if the orbits of clusters are isotropic. Recent Fokker-Planck calculations by Lee and Ostriker for spherical stellar systems including Galactic tidal field indicate that about a factor of 1.5 reduction from King's tidal radii is necessary to obtain the realistic tidal radii.

Correlation between the Metal Abundance $[Fe/H]$ and the DDO Color Indices among Globular Clusters

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Integrated DDO color indices were compared with the metal index $[Fe/H]$ of globular clusters. 80 clusters were used for this comparison. Among color indices C(42-45) is the most sensitive index to the $[Fe/H]$ value. The possible correlation of C(42-45) to $[Fe/H]$ was defined as;

$$C(42-45) = 0.16[Fe/H]^2 + 0.62[Fe/H] + 1.12$$

This good correlation was assumed to come from the existence of G-band in C42 filter band. However C(35-38) color index showed the anticorrelation with the $[Fe/H]$ index, which might come from the presence of the violet CN in C38 filter band.

산개 성단의 초기 질량 함수와 광도 함수

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산개 성단의 초기 질량 함수를 여러 형태로 가정하여 이론적인 진화 모형을 따라 성단의 나이 만큼 진화시켜 모형 산개 성단을 구성하고, 구성된 각 모형성단의 현재의 광도 함수와 관측 자료로부터 얻은 현재의 광도 함수를 비교하여, 보다 사실적인 초기 질량 함수를 조사해 보았다.

관측이 잘 이루어진 9개의 산개 성단에 대한 조사 결과 각기 성단에 따라 초기 질량 함수의 형태나 그 기울기가 다양한 성질을 갖는다는 사실을 확인하였다.