Color Gradient of External Galaxies

Kim, Kyung Ok and Ann, Hong Bae
Department of Earth Science, Pusan National University

We derived the color gradients of 103 galaxies ranging from $T=-6$ to $T=10$, by making use of the *UBV* multi-aperture photometry of bright galaxies in the catalogue of Longo *et al.* (1983). The degrees of color gradients are different from galaxy to galaxy, even for the same Hubble type.

The color gradients of ellipticals are correlated with the total absolute magnitudes of galaxies and velocity dispersion, and they can be explained by the metallicity gradients observed in several galaxies. For spirals, the metallicity gradients are not the main reason for the observed color gradients, rather, they are derived from the difference of stellar contents between the central and outer part of the galaxies.

秋季 學術大會

일시 : 1988年 10月 15日
장소 : 경북대학교 (본관 5층 중앙회의실)

<研 究 論 文>

우리 은하의 적외선 모형

강 용 희
경북대학교 사범대학 지구과학교육과

A model for the galactic distribution of stars is developed by fitting IRAS 12μm source counts to the two-component density distribution of an exponential disk and an $R^{1/4}$ spheroid.

The model can reproduce the IRAS source counts fairly well when we assume the late type M giants mainly contribute to the 12μm luminosity function. By fitting the source counts we find the scale length and the scale height of the exponential disk are 2.2Kpc and 300pc respectively. The axial ratio of the de Vaucouleurs spheroid is suggested to be 0.85, and the local spheroid to disk population ratio is found to be 1/300.

Velocity Dispersion of Elliptical Galaxy M87

Jae-Mann Kyeong and Mun-Suk Chun
Department of Astronomy and Meteorology, Yonsei University

Integrated spectrum of the peculiar elliptical galaxy NGC 4486 were analyzed through Fourier transformation. Two methods, power spectrum and Fourier Quotient methods, were applied to get a velocity dispersion.

From this analysis we found that the spectrum of low dispersion (100Å/mm) are better fitted using the Fourier Quotient method. The obtained line strength (γ) and velocity dispersion (σ) by Fourier Quotient method are $\gamma=1.0$, $\sigma=430$km/sec for the nucleus, $\gamma=0.9$, $\sigma=330$km/sec for the

region of $r=12''$ and $\gamma=0.75$, $\sigma=315$km/sec for the region of $r=24''$.

The Dynamical Evolution of Globular Clusters with Stellar Mass Loss

Chang-Hwan Kim and Mun-Suk Chun
Department of Astronomy and Meteorology, Yonsei University
Kyoung W. Min
Department of Physics, Korea Institute of Technology

The dynamical evolution of globular clusters is studied using the orbit-averaged multi-component Fokker-Planck equation. The original code developed by Cohn and Kulsrud(1978) is modified to include the effect of stellar evolutions.

Plummer's model is chosen as the initial density distribution with the mass spectrum of Salpeter's initial mass function $\phi(m)\propto m^{-2.35}$. The dynamical effect of the stellar evolution is incorporated by the mass loss when stars evolve from the giant branch to white dwarfs. The mass loss rates adopted in this work follows those of Fusi-Pecci and Renzini(1976).

The stellar mass loss acts as the energy source, and thus affects the dynamical evolution of globular clusters by slowing down the evolution rate and extending the core collapse time. Our result is compared with the work by Angeletti and Giannone(1977).

行星間 空間閃光을 이용한 太陽風 探査 可能性 硏究

김 수 용
한국과학기술대학

M파나 cm파의 외계 천체 신호의 관측시 알 수 있는 사실은 이 신호가 전파 매질의 영향을 받는다는 사실이다. 따라서, 이러한 신호의 주파수 분산과 강도의 scintillation을 해석하면 태양 코로나, 星間플라즈마, 行星間 空間의 환경 즉, 태양풍의 활동을 이해할 수 있다. 여기에서는 간단한 이론 및 실험 방법을 소개한다.

Stellar Activity and Rotation Period of Lower Main Sequence Stars

Yun, Hong Sik and Park, Young Deuk
Department of Astronomy, Seoul National University

To examine relation between stellar activity and rotation we derived relations between the Rossby number R_0 and stellar activity R'_{HK}, R'_{MgII}, R'_{CII}, R'_{CIV} and R'_{X-ray} and assessed the relation by plotting R'_{HK}, R'_{MgII} and R'_{X-ray} against rotation period P_{rot} for comparison with observations.

From the comparison it is found that as far as the rotation is concerned, (1) normalized surface flux R'_{HK} is better than the surface flux F'_{HK}, in the sense that R'_{HK} differentiates the color dependence better and (2) R'_{HK} defined by Rutten (1984) describes the observations notably better than R'_{HK} of Noyes *et al.* (1984).

In the present study we considered only the main sequence stars in an attempt to minimize the influence of other stellar parameters such as radius, age and stellar convection on stellar activity