Color Gradient of External Galaxies

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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.

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<研 究 論 文>

우리 은하의 적외선 모형

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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

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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