2) Bar의 구조적 특징은 disk보다 Spheroid의 특성과 더 깊은 관련성이 있다.

3) Hubble type에 따른 bar의 Scale brightness나 Scale length의 분포의 특징은 이들량과 $R_e$와의 관련성에 의해 해석될 수 있다.

4) 막대은하의 $(r, l)$ type이나 나선팔의 형태는 막대의 특성과 깊은 관련성이 있다.

5) 이상에서와 같이 막대은하의 내부구조를 지배하는 가장 중요한 parameter는 spheroid의 luminosity concentration을 나타내는 $R_e$로 볼 수 있다.

## Stellar Populations in External Galaxies. III. Super Metal Rich Giants

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Stellar populations in three external galactic nuclei, M31, M32, and M33 are estimated using "population synthesis" method based on linear programming algorithm. The contribution of Super Metal Rich (SMR) giants to the integrated light of those galaxies is investigated. In contrast to the tight astrophysical constraints adopted by previous workers, loose constraint set is estabilshed from various stellar evolution theories.

When compared to the conventional old metal-rich (OMR) population models obtained with tight constraints, our models show lower SMR content. With the result that predicted UV flux distribution is brighter than the observation (Paper II), minor contribution from SMR giants implies that, in population synthesis technique the loose constraints might avoid the UV deficiency problem and abnormal abundance distribution on the H-R diagram arisen in OMR models.

Since the population models are very sensitive to the astrophysical constraints and the stellar content in external galactic nuclei may be quite different from the solar neighborhood from which the tight constraints are derived, we conclude that the population models obtained by the loose astrophysical constraints are more reasonable.

## A Study of the Solar Motion and Velocity Dispersions with Gliese Nearby Star Catalogue

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Utilizing the data in the nearby star catalogue of Gliese(1969; 1979), we obtained the Solar motion and velocity dispersions from three independent methods. The radial velocity, proper motion, and space motion data are used for corresponding methods, respectively. The trend of the resulted solar motions for spectral types shows similar properties to the previous investigations. However, different methods of analysis yield inconsistent results for the same data. Therefore, it seems that the conventionally accepted solar motion should be reconsidered with more precisely determined recent data.

## A Two Cavity Model for Umbral Oscillations

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In the present study a two-mode, separately concurring resonant cavity model is proposed for