The $Mg_2 - \log\sigma$ Relation for Early-type Galaxies through the Extragalactic Database *HYPERCAT*

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Abstract

We report the local $Mg_2(r)$ vs. $\log\sigma(r)$ relationship of for some typical elliptical and S0 galaxies whose data are maintained in the extragalactic database *HYPERCAT*. The two relations, for E and S0 galaxies, are significantly different. The account of the contribution of the rotation to the local potential at the time of star formation bulk could provide an explanation of this difference. The analysis shows that the appropriate accounting for the rotational support leads the $Mg_2(r) - \log\sigma(r)$ relation for S0s to become like that for the ellipticals. This would mean that the disks of S0s are both old and have a high metallicity. Thus, the qualitative difference between the local $Mg_2(r) - \log\sigma(r)$ relationship of S0s and ellipticals may still be compatible with a model of dissipative quasi-simultaneous formation of the disk and the bulge.