

POSSIBLE EVIDENCE FOR EVOLUTION IN THE PHOTOMETRIC PROPERTIES
OF NEARBY GALAXIES

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Abstract :

Given the four observables--optical magnitudes, infrared magnitudes, optical dimensions, and H I line profile widths--then 6 pairwise combinations of these observables can be constructed that are distance dependant and 4 triplet combinations can be constructed that are distance independant. Tight correlations are found between all possible combinations of these parameters with samples of galaxies drawn from the Virgo and Ursa Major clusters. However, when large samples of mostly non-cluster galaxies are considered, the scatter in the same relationships increases. The scatter in certain of the distance--independant plots is not symmetrical with respect to the lay of the cluster data. If the data are good, then the interpretation could be that some galaxies in our large sample are redder than normal for their mass. Such galaxies are expected to exist if spirals evolve to become gas-depleted lenticulars.