[P07-2] Near-IR Photometry of Asymptotic Giant Branch Stars in NGC 185 and NGC 147

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Near-infrared JHK band images obtained with the Canada-France-Hawaii Telescope were used to investigate the stellar contents of asymptotic giant branch(AGB) in the dwarf elliptical galaxies NGC 185 and NGC 147. The bright parts of (K,J-K) and (K,H-K) color-magnitude diagrams for both galaxies consist of a group of bright blue stars, a dominant population of M-giants, and red C-star population in AGB populations. From the analysis of two-color diagrams for AGB stars, we identified new 73 C stars in NGC 185 and 91 C stars in NGC 147. The number ratio of C star to M-giants of NGC 185 was estimated at 0.11±0.04 without any radial gradient. While NGC 147 has C/M=0.18±0.07 with a weak radial gradient. The absolute magnitude of the AGB tips from the cumulative luminosity function are determined as M_K=-8.54~-8.20 for NGC 185 and as M_K=-7.74 for NGC 147. Comparing these values with theoretical stellar evolution models for AGB stars, we will discuss AGB star formation epochs in the galaxies.

[P07-3] Environmental Effect on Color Gradient of Early-Type Galaxies

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Hierarchical galaxy formation models predict that galaxy evolution proceeds differently depending on environment. One way to test this prediction is to study internal structure of early-type galaxies in different environment. Hence, we have studied internal color gradients of early-type galaxies by comparing V- and K-band half-light radius of 273 early-type galaxies from Pahre(1999). One simple way to measure color gradient is to compare half-light radii in different bands, since color gradient shows up as a difference of half-light radii in two different bands. We find that r_e[K]s (half-light radius measured in K-band) are in general smaller than r_e[V]s, which means that the inner parts of early-types are redder than the outer parts. More importantly, we find environmental dependence in color gradient; galaxies in the denser region (clusters of galaxies) have a gentler color gradient than in the lower density environment (field). Using our own data (Lemon Mt. & Maidanak Mt.), we have checked any possible systematic errors in the size measurements in the literature. However, we find no strong systematic bias. Our result suggests that early-types in the cluster environment have gone through more merger events than in the field environment.