

[꺁GC-14] Gemini/GMOS Observation of Extended Star Clusters in Dwarf Irregular Galaxy NGC 6822

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We present a spectroscopic study of NGC 6822 extended star clusters (ESCs) based on the observation with the Gemini Multi-Object Spectrograph on the Gemini-South 8.1 m telescope. The radial velocities of four ESCs do not display any sign of systematic motion, unlike the intermediate age carbon stars in NGC 6822. The ages and metallicities derived using the Lick indices show that the ESCs are old (≥ 8 Gyr) and metal poor ($[\text{Fe}/\text{H}] \leq -1.5$).

NGC 6822 is found to have both metal poor ($[\text{Fe}/\text{H}] \approx -2.0$) and metal rich ($[\text{Fe}/\text{H}] \approx -0.9$) star clusters within $15'$ (2 kpc) from the center, whereas only metal poor clusters are observed in the outer halo with $r \geq 20'$ (2.6 kpc).

Based on the kinematics, old ages, and low metallicities of ESCs, we discuss the possible origin of ESCs and the formation of the outer halo of a small dwarf irregular galaxy NGC6822

[꺁GC-15] Role of environment in the origin of early-type dwarf galaxies

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Role of environments is one of today's most widely discussed and debated topic in the field of extra-galactic astronomy. Extreme morphology-density relations found in low-mass galaxies are considered to be the result of an effective role played by environment in the evolution of these galaxies. I will present the results from our dedicated study of early-type dwarf galaxies (dEs) in different environments using imaging and spectroscopic data. We find that Virgo cluster dEs have a variety of structural and kinematic properties. A significant fraction of dEs possesses disk features, such as spiral arm and bar, while a central nucleus seems to be universal in these low mass galaxies. We also find that a majority of dEs are fast rotator and their rotation curves are much steeper than that of spiral galaxies of similar mass. Finally I will discuss how the different environmental mechanisms, i.e., gas-stripping or tidal interaction, can contribute to form heterogeneous dEs in Virgo cluster.