

[GC-12] Globular Cluster System of Sombrero Galaxy

Eunhyeuk Kim¹, Sangmo Tony Sohn^{1,2}, Sang-Il Han¹, Hak-Sub Kim¹ and
Young-Wook Lee¹

¹*Department of Astronomy and Space Sciences, Yonsei University,* ²*California Institute of
Technology, USA*

We carried out wide field multi-band observations of Sombrero galaxy (M104) using mosaic camera equipped with CTIO 4m Blanco telescope. To investigate the physical properties of globular cluster system (GCS) of M104 we first select the GC candidates based on UBVI photometry. By applying a similar selection method applied to the study of GCS in NGC 1399 in Fornax cluster (Kim et al 2009) we found hundreds of GC candidates in Sombrero galaxy. We present both photometric properties and spatial distribution of GCs in M104. We confirm the clear bimodality of GC color distributions based on a large number of GCs. We also find that GCs in M104 are spatially more concentrated into the galaxy center. Using the archival data of Chandra X-ray observatory we compare the optical properties of GCs with the x-ray properties of low-mass X-ray binaries in M104.

[초 GC-13] Three theoretical issues in physical cosmology: nonlinear clustering, dark matter, and dark energy

Jai-chan Hwang¹, and Hyerim Noh²

¹*Department of Astronomy and Atmospheric Sciences, Kyungpook National University*

²*Korea Astronomy and Space Science Institute*

We present our recent studies on three theoretical issues in physical cosmology. (1) We probe the pure Einstein's gravity contributions to the second-order density power spectrum. (2) We prove that the axion as a coherently oscillating scalar field acts as a cold dark matter in nearly all cosmologically relevant scales. (3) We study the roles of dark energy perturbation on the large-scale structure and the cosmic microwave background radiation power spectra.