[구ST-11] A Photometric Study of Five Open Clusters in the SDSS

Jinhyuk Ryu and Myung Gyoon Lee
Astronomy Program, Department of Physics and Astronomy, Seoul National University

We present a study of five open clusters (Alessi 53, Berkeley 49, Berkeley 84, Czernik 5, Pfleiderer 3) based on *ugriz* images of the Sloan Digital Sky Survey (SDSS). Physical properties of these clusters are not yet well known. The center and size of these clusters are determined using the radial number density profile. Using the proper motion data, we select the members of the target clusters. We estimate physical parameters of the clusters based on the isochrone fitting in the Color-Magnitude Diagram (CMD) : reddening, distance, and age. The foreground reddening is determined to be E(B-V)=0.71-1.55 mag. The distances to target clusters are derived to be 2.0-4.4 kpc, corresponding to the galactocentric distances of 7.5-11.9 kpc. Their ages are in the range of 280 to 1000 Myr. Their spatial distribution in our Galaxy is similar to that of other intermediate-age open clusters. We find ten blue straggler star candidates in Berkeley 49. This number of blue stragglers is a typical value for the age of Berkeley 49.

[구ST-12] The Effect of Horizontal Branch Stars on the Age-Dating of Simple Stellar Populations.

Chul Chung, Young-Wook Lee, and Suk-Jin Yoon
Department of Astronomy, Yonsei University, Seoul, South Korea

Based on Yonsei Evolutionary Population Synthesis (YEPS), we have investigated the effect of horizontal branch stars (HBs) on the age-dating of simple stellar populations (SSPs). A detailed comparison of YEPS SSP with H_beta of M31 globular clusters (GCs) reveals (1) that the age dating without HB prescription gives ~5 Gyr younger ages for metal-poor M31 GCs, and (2) the age dating with HB prescription does not need any age gap between metal-poor and metal-rich GCs. This result is parallel to the well-known discrepancy in ages derived from integrated Balmer strengths and isochrone fittings of Milky Way GCs (MWGCs). Without a synthetic blue HB model, we cannot explain strong Balmer indices of metal-poor and old MWGCs. Our results suggest that the SSP model with well calibrated HBs should be used for the age-dating of SSPs to avoid a serious underestimation of ages due to the strong Balmer indices.