[구ST-09] Globular clusters with multiple red giant branches: Population synthesis models

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Recent observations have shown that some massive globular clusters (GCs) host multiple stellar populations having different heavy element abundances enriched by supernovae. They usually accompany multiple red giant branches (RGBs) in the color-magnitude diagrams (CMDs), and are distinguished from most of the other GCs which display variations only in light element abundances. In order to investigate the star formation histories of these peculiar GCs, we have constructed synthetic CMDs based on the updated versions of Yonsei-Yale (Y^2) isochrones and horizontal branch evolutionary tracks which include the cases of enhancements in both helium and the total CNO abundances. To estimate ages and helium abundances of subpopulations in each GC, we have compared our models with the observations on the Hess diagram by employing a χ^2 minimization technique. In this talk, we will present our progress in the population modeling for these GCs with multiple RGBs.