[포GC-37] Properties of Merging Galaxies in the Nearby Universe

Jong Han Park, Hong Bae Ann and Hyesung Kang
Department of Earth Sciences, Pusan National University

We have investigated properties of merging galaxies in the nearby universe, using Sloan Digital Sky Survey (SDSS) DR7. We first constructed two galaxy samples according to redshift range: Sample 1 for $0 \leq z \leq 0.025$ and Sample 2 for $0.09 \leq z \leq 0.1$. We then identified 118 and 184 merging galaxies among the galaxies in the Sample 1 and 2, respectively, and classified them into different merging types and stages by visual inspection of galaxy images. In the Sample 1, there are more wet mergers than dry mergers, while most merging galaxies in the Sample 2 are dry mergers. The color-magnitude diagram of the merging galaxies in our samples is comparable to that of normal galaxies. Dry mergers tend to locate in the red sequence, while wet and mixed mergers reside mostly in the blue cloud. Unlike some previous studies, we did not find a clear trend that the merger rate increases at higher redshift. However, it is difficult to make a direct comparison of the merger rate found in different studies, because it depends on the number of observed galaxies and criteria for merger classification. From the ratios of emission lines, we infer that the faction of merging galaxies with AGNs is higher in wet mergers than in other types.

[포GC-38] Chemical Properties of Globular Clusters in Nearby Giant Elliptical Galaxies

Hong Soo Park and Myung Gyoon Lee
Seoul National University

We present a study of the metallicities, ages, and alpha-elements of globular clusters (GCs) in nearby giant elliptical galaxies (gEs) (M87, M49, M60, NGC 5128, NGC 1399, NGC 1407, and NGC 4636) using data in the literature. We used only the data for the GCs derived from the comparison of absorption line indices with the single stellar population model. The metallicity distributions of GCs in these gEs are bimodal, showing the existence of metal-poor and metal-rich populations. All these gEs harbor young GCs with ages less than 5 Gyr as well as old GCs. The mean age of the metal-rich GCs ([Fe/H]>-0.9) is about 3 Gyr younger than that of the metal-poor GCs. The mean values for the alpha-elements of the GCs are smaller than or similar to that of the Milky Way GCs. All the GCs in these gEs show an age-metallicity relation; the larger the metallicities of the GCs are, the younger the GCs are. Old GCs with ages > 10 Gyr have two distinct sub-populations (metal poor and metal rich), while young GCs show a broad metallicity distribution with a single peak. We discuss these results in relation with the formation of GCs in gEs.