[구GC-08] Spectroscopy of Globular Clusters in the Core of the Virgo Cluster

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The Virgo cluster, the nearest galaxy cluster, is dynamically young, hosting numerous globular clusters in galaxies as well as intracluster globular clusters (IGCs). We obtained spectra of globular cluster candidates in the core region of the Virgo cluster using Hectospec at MMT to study the kinematics of the globular clusters. The targets are located at a large range (50 kpc < d < 500 kpc) from M87, the most massive galaxy in Virgo. We distinguish the genuine globular cluster population in the targets by inspecting their spectral features and radial velocities. As a result, a significant number of IGCs are found. We present preliminary results of the kinematics of globular clusters in the Virgo core region.

[구GC-09] Discovery of an Ultra Faint Dwarf Galaxy in the Virgo Core

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Ultra faint dwarf galaxies (UFDs) are larger but fainter than globular clusters, being the faintest galaxies in the universe. They have been found only in the Local Group. We report the discovery of an UFD in the intracluster field of the Virgo cluster (Virgo UFD1). It is located near the core of Virgo cluster, and far from any massive galaxies. The color magnitude diagram of resolved stars in Virgo UFD1 shows narrow, metal poor red giant branch (RGB), which is very similar to the UFDs in the Local Group. by comparing RGB in this galaxy with 12 Gyr stellar isochrones, we estimate its distance, d = 16.4 ± 0.4 Mpc and mean metallicity, [Fe/H] = −2.4 ± 0.4. We derive its integrated photometric properties and structural parameters : V−band absolute magnitude of MV = −6.3 ± 0.2, effective radius of 84 ± 7 pc, and central surface brightness of μV,0 = 26.49 ± 0.09 mag arcsec−2. These properties are similar to these of Local Group UFDs. Virgo UFD1 is the first UFD discovered beyond the Local Group. These results indicate that it may be a fossil remnant of the first galaxies.