Minor, Canes Venatici, and Virgo III) around the Virgo cluster using the Sloan Digital Sky Survey optical spectroscopic data and Galaxy Evolution Explorer ultraviolet photometric data. We investigate the relationship between stellar mass, gas-phase metallicity, and specific star formation rate (sSFR) of SFDGs in the Virgo filaments in comparison to those in the Virgo cluster and field. We find that, at a given stellar mass, SFDGs in the Virgo filaments show lower metallicity and higher sSFR than those in the Virgo cluster on average. We observe that SFDGs in the Virgo III filament show enhanced metallicities and suppressed star formation activities comparable to those in the Virgo cluster, whereas SFDGs in the other four filaments exhibit similar properties to the field counterparts. Moreover, about half of the galaxies in the Virgo III filament are found to be morphologically transitional dwarf galaxies that are supposed to be on the way to transforming into quiescent dwarf early-type galaxies. Based on the analysis of the galaxy perturbation parameter, we propose that the local environment represented by the galaxy interactions might be responsible for the contrasting features in "chemical pre-processing" found in the Virgo filaments.

[포 GC-09] HI gas kinematics of paired galaxies in the cluster environment from ASKAP pilot observations

Shin-Jeong Kim[1], Se-Heon Oh[2]★, Minsu Kim[1], Hye-Jin Park[2], Shinna Kim[1], and ASKAP WALLABY Science Working Group[2] (SWG2)
[1]*Department of Astronomy and Space Science, Sejong University, Seoul, Korea*
[2]*Department of Physics and Astronomy, Sejong University, Seoul, Korea*
★corresponding author: seheon.oh@sejong.ac.kr

We examine the HI gas kinematics and distributions of galaxy pairs in group or cluster environments from high-resolution Australian Square Kilometer Array Pathfinder (ASKAP) WALLABY pilot observations. We use 32 well-resolved close pair galaxies from the Hydra, Norma, and NGC 4636, two clusters and a group of which are identified by their spectroscopy information and additional visual inspection. We perform profile decomposition of HI velocity profiles of the galaxies using a new tool, BAYGAUD which allows us to separate a line-of-sight velocity profile into an optimal number of Gaussian components based on Bayesian MCMC techniques. Then, we construct super profiles via stacking of individual HI velocity profiles after aligning their central velocities. We fit a model which consists of double Gaussian components to the super profiles,

and classify them as kinematically cold and warm HI gas components with respect to their velocity dispersions, narrower or wider σ, respectively. The kinematically cold HI gas reservoir (M_cold/M_HI) of the paired galaxies is found to be relatively higher than that of unpaired control samples in the clusters and the group, showing a positive correlation with the HI mass in general. Additionally, we quantify the gravitational instability of the HI gas disk of the sample galaxies using their Toomre Q parameters and HI morphological disturbances. While no significant difference is found for the Q parameter values between the paired and unpaired galaxies, the paired galaxies tend to have larger HI asymmetry values which are derived using their moment0 map compared to those of the non-paired control sample galaxies in the distribution.

[포 GC-10] Gas dynamics and star formation in NGC 6822

Hye-Jin Park[1], Se-Heon Oh[1], Jing Wang[2], Yun Zheng[2], Hong-Xin Zhang[3,4], and W.J.G. de Blok[5,6,7]
[1]*Department of Physics and Astronomy, Sejong University, Seoul, Korea*
[2]*Kavli Institute for Astronomy and Astrophysics (KIAA), Peking University, Beijing, China*
[3]*Key Laboratory for Research in Galaxies and Cosmology, Department of Astronomy, University of Science and Technology of China, Hefei, China*
[4]*School of Astronomy and Space Science, University of Science and Technology of China, Hefei, China*
[5]*Netherlands Institute for Radio Astronomy (ASTRON), Dwingeloo, The Netherlands*
[6]*Department of Astronomy, University of Cape Town, Rondebosch, South Africa*
[7]*Kapteyn Astronomical Institute, University of Groningen, Groningen, The Netherlands*

We examine gas kinematics and star formation activities of NGC 6822, a gas-rich dwarf irregular galaxy in the Local Group at a distance of ~490 kpc. We perform profile decomposition of all the line-of-sight (LOS) HI velocity profiles of the high-resolution (42.4" x 12" spatial; 1.6 km/s spectral) HI data cube of the galaxy, taken with the Australian Telescope Compact Array (ATCA). To this end, we use a novel tool based on Bayesian Markov Chain Monte Carlo (MCMC) techniques, the so-called BAYGAUD, which allows us to decompose a velocity profile into an optimal number of Gaussian components in a quantitative manner. We group all the decomposed components into bulk-narrow, bulk-broad, and non-bulk gas components classified with respect to their velocity dispersions and the amounts of velocity offset from