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

the global kinematics, respectively. Using the surface densities and velocity dispersions of the kinematically decomposed HI gas maps together with the rotation curve of NGC 6822, we derive Toomre-Q parameters for individual regions of the galaxy which quantify the level of local gravitational instability of the gaseous disk. We also measure the local star formation rate (SFR) of the corresponding regions in the galaxy by combining GALEX Far-ultraviolet (FUV) and WISE 22μm images. We then relate the gas and SFR surface densities in order to investigate the local Kennicutt-Schmidt (K-S) law of gravitationally unstable regions which are selected from the Toomre Q analysis. Of the three groups, the bulk-narrow, bulk-broad and non-bulk gas components, we find that the lower Toomre-Q values the bulk-narrow gas components have, the more consistent with the linear extension of the K-S law derived from molecular hydrogen (H2) observations.

[포 GC-11] High-resolution mass models of the Large Magellanic Cloud

Shinna Kim[1], Se-Heon Oh[2★], Bi-Qing For[3] and Yun-Kyeong Sheen[4]

[1]Department of Astronomy and Space Science, Sejong University, Seoul, Korea
[2]Department of Physics and Astronomy, Sejong University, Seoul, Korea
[3]International Centre for Radio Astronomy Research (ICRAR), University of Western Australia, Crawley, Australia
[4]Korea Astronomy and Space Science Institute, Daejeon, Korea
★corresponding author: seheon.oh@sejong.ac.kr

We perform disk-halo decomposition of the Large Magellanic Cloud (LMC) using a novel HI velocity field extraction method, aimed at better deriving its HI kinematics and thus mass distribution in the galaxy including both baryons and dark matter. We decompose all the line-of-sight velocity profiles of the combined HI data cube of the LMC, taken from the Australia Telescope Compact Array (ATCA) and Parkes radio telescopes with an optimal number of Gaussian components. For this, we use a novel tool, the so-called BAYGAUD which performs profile decomposition based on Bayesian MCMC techniques. From this, we disentangle turbulent non-ordered HI gas motions from the decomposed gas components, and produce an HI bulk velocity field which better follows the global circular rotation of the galaxy. From a 2D tilted-ring analysis of the HI bulk velocity field, we derive the rotation curve of the LMC after correcting for its transverse, nutation and precession motions. The dynamical contributions of baryons like stars and gaseous components which are derived using the Spitzer 3.6 micron image and the HI data are then subtracted from the total kinematics of the LMC. Here, we present the bulk HI rotation curve, the mass models of stars and gaseous components, and the resulting dark matter density profile of the LMC.

[포 GC-12] Searching for Spectrally Variable AGNs using Multi-epoch Spectra from SDSS

Jiyeon Seong[1], Minjin Kim[1], Dong-Chan Kim[2], Il-Sang Yoon[2], Jaejin Shin[1]
[1]Department of Astronomy and Atmospheric Science, Kyungpook National University, [2]National Radio Astronomy Observatory

Using multi-epoch spectra of active galactic nuclei (AGN) obtained from the Sloan Digital Sky Survey, we identify 16 spectrally variable sources, for which the spectral shapes of broad emission lines significantly vary with a time scale of yrs. Out of them, 3 AGNs are already known as changing-look (CL) AGNs by previous studies. 6 AGNs are newly identified as CL AGNs from our study. A majority of these AGNs are relatively faint and their variability in the continuum is small, which may explain their non-detection in the previous studies. 7 sources are known as binary AGN candidates based on the systematic velocity offset between broad emission lines and narrow emission lines. For those sources and 3 CL AGNs, we find that the peak of broad emission lines had been shifted up to a few thousands km/s for ~10 years, implying that those can be promising candidates for pc-scale binary AGNs or recoiling black holes. We plan to conduct multiwavelength follow-up studies to nail down the physical origin of the velocity shift.

[포 GC-13] The strategy to catch more early light curves of supernovae

Jeeun Hwang, Myungshin Im, Gregory S.H. Paek, and IMSNG team
SNU Astronomy Research Center

The Intensive Monitoring Survey of Nearby Galaxies (IMSNG) is a high cadence observation program monitoring nearby galaxies at < 50 Mpc with high probabilities of hosting supernovae (SNe). The current number of main IMSNG targets is 60, but with new wide-field facilities joining IMSNG,