선속도 차이는 (308.8km/s)상승하였다. 이를 통해 성간 물질의 물리량 차이만으로는 400km/s 이상의 큰 선속도 차이를 만드는 것은 어렵다. 관측에서 보이는 400km/s 이상의 몇몇 큰 선속도 차이의 은하를 위해서는 이 시뮬레이션에 포함되지 않은 성운 주위의 물질과 같은 부분이나, 은하 합병과 같은 극한의 상황이 필요할 것이다.

[포 GC-13] ALMA/ACA CO (1-0) observations of group galaxies

Bumhyun Lee[1], Jing Wang[1], Aeree Chung[2], Luis C. Ho[1,3], Ran Wang[1], Li Shao[4], Tomonari Michiyama[1], Shun Wang[1,3], Eric W. Peng[1,3], Virginia Kilborn[5,6]
[1] Kavli Institute for Astronomy and Astrophysics, Peking University, China, [2]Department of Astronomy, Yonsei University, Korea, [3]Department of Astronomy, School of Physics, Peking University, China, [4]National Astronomical Observatories, Chinese Academy of Sciences, China, [5]Centre for Astrophysics and Supercomputing, Swinburne University of Technology, Australia, [6]ARC Centre of Excellence for All Sky Astrophysics in 3 Dimensions (ASTRO 3D), Australia

Galaxy groups are the place where many galaxies feel the impact of the surroundings (e.g., merging, tidal interaction, ram pressure stripping) before joining bigger structures like (sub)clusters. A significant fraction of galaxies is quenched in the group environment. Such “pre-processing” of galaxies in groups is likely to affect galaxy evolution tremendously. To better understand how environmental processes in galaxy groups affect molecular gas, star formation activity, and galaxy evolution, we carried out CO imaging observations of group galaxies, using the Atacama Compact Array (ALMA/ACA). We selected all the targets that have been detected in the GEMS-HI survey for two groups, making the sample of 40 galaxies (18 galaxies in IC 1459 group and 22 galaxies in NGC 4636 group). Our ALMA/ACA observation is the first CO imaging survey for two groups. In this work, we present CO images of group galaxies, together with their star formation maps and HI images. Our ACA CO data show the asymmetric distribution of molecular gas in some of our samples. We discuss the impact of the group environment on molecular gas and star formation activity

[포 GC-14] Properties of Galaxies in Cosmic Filaments around the Virgo Cluster

Youngdae Lee[1], Suk Kim[1], Soo-Chang Rey[1], Jiwon Chung[2]
[1]Department of Astronomy and Space Science, Chungnam National Nuniversity (CNU), [2]Korea Astronomy and Space Science Institute (KASI)

We present the properties of galaxies in filaments around the Virgo cluster with respect to their vertical distance from the filament spine. Using the NASA−Sloan Atlas and group catalogs, we select galaxies that do not belong to groups in filaments. The filament member galaxies are then defined as those located within 3.5 scale length from the filament spine. The filaments are mainly (~86%) composed of low−mass dwarf galaxies of $\log h^2 M_*/M_\odot < 9$ dominantly located on the blue cloud in color−magnitude diagrams. We observe that the $g - r$ color and stellar mass of galaxies correlate with their vertical distance from the filament spine in which the color becomes red and stellar mass decreases with increasing vertical filament distance. The galaxies were divided into two subsamples in different stellar mass ranges, with lower−mass ($\log h^2 M_*/M_\odot \leq 8$) galaxies showing a clear negative g−r color gradient, whereas higher−mass ($\log h^2 M_*/M_\odot > 8$) galaxies have a flat distribution against the vertical filament distance. We observe a negative EW(Hα) gradient for higher−mass galaxies, whereas lower−mass galaxies show no distinct variation in EW(Hα) against the vertical filament distance. In contrast, the $NUV - r$ color distribution of higher−mass galaxies shows no strong dependence on the vertical filament distance, whereas the lower−mass galaxies show a distinct negative $NUV - r$ color gradient. We do not witness clear gradients of HI fraction in either the higher− or lower−mass subsamples. We propose that the negative color and stellar mass gradients of galaxies can be explained by mass assembly from past galaxy mergers at different vertical filament distances. In addition, galaxy interactions might be responsible for the contrasting features of EW(Hα) and $NUV - r$ color distributions between the higher− and lower−mass subsamples. The HI fraction distributions of the two subsamples suggest that ram−pressure stripping and gas accretion could be ignorable processes in the Virgo filaments.

[포 GC-15] Phas-space Analysis of Halos around Large-scale Filamentary Structures

Hannah Jhee[1], Hyunmi Song[2], Rory Smith[3], Jihye Shin[3], and Inkyu Park[1]
[1]University of Seoul, [2]Yonsei University, [3]KASI

It has been studied that galaxies evolve following a typical trajectory on the phase space under the influence of deep gravitational potential of galaxy clusters. Similarly, the large-scale filaments could also affect the evolution of galaxies before falling into the clusters. In this study, using a dark