[1]Department of Astronomy, Yonsei University, Republic of Korea, [2]Korea Astronomy and Space Science Institute, Republic of Korea, [3]Purple Mountain Observatory & Key Laboratory for Radio Astronomy, Chinese Academy of Sciences, People's Republic of China, [4]East Asian Observatory

We present the results from our comparisons of HCN and HCO+ (J=4-3) with HI and H_2 gas in NGC 6946, a sample from a mapping study of the dense molecular gas in the strongest star-forming galaxies (MALATANG). The MALATANG is one of the JCMT legacy surveys on the nearest 23 IR-brightest galaxies beyond the Local Group, which aims to study the relations of dense molecular gas with more general cool gas such as atomic and molecular hydrogen gas, and star formation properties in active galaxies. In this work, we particularly focus on the comparisons between the JCMT HCN/HCO+ (J=4-3) data and the THINGS HI/the NRO CO (J=1-0) data. We probe the dense molecular gas mass as a function of HI and H_2 mass in different locations in the central ~1.5 kpc^2 region. We discuss how the excess/deficit of HI/H_2 or total cool gas ($HI+H_2$) mass controls the presence and/or the fraction of dense molecular gas.

[포 GC-15] ISM truncation due to ram pressure stripping: Comparisons of Theoretical Predictions and Observations

Seona Lee[1], Yun-Kyeong Sheen[2], Hyein Yoon[1], Aeree Chung[1], Yara Jaffé[3]
[1]*Department of Astronomy, Yonsei University*
[2]*Korea Astronomy and Space Science Institute*
[3]*Instituto de Física y Astronomía, Universidad de Valparaíso*

It has been proposed by Gunn & Gott (1972) that galaxies may lose their interstellar gas by ram pressure due to the dense intra-cluster medium while falling to the cluster potential. The observational evidence for this process, which is known as ram pressure stripping, is increasing, and it is believed to be one of the key environmental effects that can dramatically change the star formation activity of galaxies and hence their evolution. Intriguingly however, some cases with clear signs of ram pressure stripping are found in the environment which betrays our expectations (e.g. large clustercentric distances), and our understandings to the detailed working principle behind ram pressure stripping seem to be still lacking. As one of the ways to gain more theoretical insights into the conditions for ram pressure stripping process, we have been comparing the gas truncation radius which is predicted based on the simple Gunn & Gott's prescription with what is actually observed in a sample of carefully selected Virgo galaxies. In this work, we present the results of our comparisons between the theoretically predicted truncation radius and the observationally measured truncation radius for individual galaxies in the sample and discuss which additional conditions are needed in order to fully understand the observations.

[포 GC-16] Cool gas and star formation properties of ram pressure stripped galaxy NGC 4522: Insights from the TIGRESS simulation

Woorak Choi[1], Bumhyun Lee[1], Aeree Chung[1], Chang-Goo Kim[2]
[1]*Department of Astronomy, Yonsei University, Seoul, South Korea* [2]*Department of Astrophysical Sciences, Princeton University, Princeton, USA*

NGC 4522 is one of the best-known examples among the Virgo galaxies undergoing active ram pressure stripping. There have been a number of detailed observational and theoretical studies on this galaxy to constrain its stripping and star formation history. However, the impact of ram pressure on the multi-phased ISM, in particular molecular gas which plays an important role in star formation, is still not fully understood. NGC 4522, as a system where the extra-planar molecular gas is identified, is an ideal case to probe in depth how ram pressure affects molecular gas properties. Aiming to get more theoretical insights on the detailed stripping process of multi-phased ISM and its consequences, we have conducted simulations using the TIGRESS which could reproduce the realistic ISM under comparable conditions as NGC 4522. In this work, we compare the fraction of gas mass to stellar mass, star formation rates and gas depletion time scales of NGC 4522 with those measured from the simulations, not only inside the disk but also in the extra-planar space.

[포 GC-17] High-z Universe probed via Lensing by QSOs (HULQ): How many QSO lenses are there?

Yoon Chan Taak[1,2], Myungshin Im[1,2]
[1]*Center for the Exploration of the Origin of the Universe,* [2]*Astronomy Program, Department of Physics and Astronomy, Seoul National University*

Aims. The evolution of scaling relations between