Gas Dynamics of Galaxies under ICM Pressure

Aeree Chung [1]

[1] Yonsei University

Ram pressure stripping due to the intracluster medium (ICM) is one of the most effective ways to remove interstellar medium (ISM) from galaxies in the cluster environment. In particular, HI gas, the diffuse form of the ISM among the cool phases, can be quite easily stripped as shown in a number of HI imaging studies. Intriguingly, a good correlation is found between the HI stripping epoch and the global optical color among Virgo spirals in a sense that galaxies that have lost a large fraction of their HI much longer ago appear to be redder. This strongly suggests that HI stripping is connected to star formation rate somehow although atomic gas is unlikely to be more preferable ingredient to form stars than molecular gas. Meanwhile, it is still arguarable whether ICM pressure can also strip the molecular gas, which is not only dense but also located deep inside the galactic potential well. In fact, no clear evidence for molecular gas stripping is present in those galaxies that are experiencing atomic gas stripping. However, their molecular gas morphology and kinematics are still distinct from those of field galaxies, indicating that ICM pressure may still affect galactic molecular gas properties. In this talk, I will present the kinematics of atomic and molecular gas of Virgo spirals that are undergoing strong ram pressure due to the ICM. I will discuss how ICM pressure changes gas dynamics, and consequently affects star formation activities.