

**[JGC-37] Further Analysis of FLS 1718+59:
A Galaxy-Galaxy Gravitational Lens**

Yoon Chan Taak and Myungshin Im
*Center for the Exploration of the Origin of the Universe (CEOU),
Astronomy Program,
Dept. of Physics & Astronomy, Seoul National University*

We present new analyses of FLS 1718+59, a galaxy-galaxy gravitational lens system in the Spitzer First Look Survey (FLS) Field. A background galaxy ($z = 0.245$) is severely distorted by a nearby elliptical galaxy ($z = 0.08$), which can be interpreted as a result of gravitational lensing. We analyze this system by multiple methods, including ELLIPSE fitting, gravitational lens modeling, and surface brightness fitting. From this analysis, we obtain parameters of the lens galaxy using varying approaches and compare them. In the future, we will conduct SED fitting for the lens galaxy and estimate the stellar mass, and compare this with the total mass of the lens to check the M-L relation.

**[JGC-38] A study on environmental dependence with AGN activity with
the SDSS galaxies**

Minbae Kim¹, Yun-Young Choi², Sungsoo S. Kim^{1,2}
¹*School of Space Research, Kyung Hee University*
²*Department of Astronomy and Space Science, Kyung Hee University*

We explore the relative importance of the role of small-scale environment and large-scale environment in triggering nuclear activity of the local galaxies using a volume-limited sample with $M_r < -19.5$ and $0.02 < z < 0.0685$ selected from the Sloan Digital Sky Survey Data Release 7. The active galactic nuclei (AGN) host sample is composed of Type II AGNs identified with flux ratios of narrow emission lines with $S/N > 6$ and the central velocity dispersion of the sample galaxies is limited to have a narrow range between $130 < \sigma < 200$ ($km\ s^{-1}$), corresponding to $7.4 < \log(M_{BH}/M_{\odot}) < 8.1$ in order to fix the mass of the supermassive black hole at the center of its host galaxy. In this study, we find that the AGN fraction (f_{AGN}) of late-type galaxies are larger than of early-type galaxies and that for target galaxy with late-type nearest neighbor, f_{AGN} starts to increase as the target galaxy approaches the virial radius of the nearest neighbor (about a few hundred kpc scale). The latter result may support the idea that the hydrodynamic interaction with the nearest neighbor as well as tidal interaction and merger also plays an important role in triggering the nuclear activity of galaxy. We also find that early-type cluster galaxies show decline of AGN activity compared to ones in lower density regions, whereas the direction of dependence of AGN activity for late-type galaxies is opposite.