[구GC-23] Narrow-line Region of Type I QSOs

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We investigate various physical parameters of the narrow-line region (NLR) of two type I QSOs, PG1012+008 and PG1307+085. Using the spectra obtained with the FORS1 at the VLT with an excellent seeing condition (<0.7"), we can extract spectra with varying distances from the center out to the galactic scales. From these spectra we derive physical quantities such as reddening, temperature, electron density, and ionization parameter as a function of distance from the center. We also explore the possibility of defining the size of the NLR with line ratio diagnostics regardless of starbursts, shock-ionized gas, or tidal tails.

[구GC-24] Defining the M_{BH}-sigma$_*$ relation using the uniformly measured stellar velocity dispersions in the near-IR

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The correlation between black hole mass and stellar velocity dispersion provides an important clue on the black hole growth and galaxy evolution. In the case of AGN, however, it is extremely difficult to measure stellar velocity dispersions in the optical since AGN continuum dilutes stellar absorption features. In contrast, stellar velocity dispersions of active galaxies can be measured in the near-IR, where AGN-to-star flux ratio is much smaller. Expecting that more stellar velocity dispersion measurements will be available using future near-IR facilities, it is crucial to test whether the stellar velocity dispersions measured from the near-IR spectra are consistent with those measured from the optical spectra. For a sample of 35 nearby galaxies, for which optical stellar velocity dispersion measurements and dynamical black hole masses are available, we obtained high quality H-band spectra, using the TripleSpec at the Palomar 5-m Telescope, in order to calibrate the stellar velocity dispersions and define the M_{BH}-sigma$_*$ relation in the near-IR. Based on the spatially resolved kinematics, we correct for the rotation component and determine the luminosity-weighted stellar velocity dispersion of the spheroid component in each galaxy. In this presentation, we will show the comparison between optical and near-IR stellar velocity dispersion measurements and define the M_{BH}-sigma$_*$ relation based on uniformly measured stellar velocity dispersion in the near-IR.