## [포GC-15] Calibrating black hole mass estimators using high quality Keck spectra

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Black hole masses of Active Galactic Nuclei (AGN) are one of the most important parameters in AGN physics. Based on the virial assumption, black hole masses can be determined from the product of the width of the broad emission lines and the continuum/line luminosities.

Using the Low Resolution Imaging Spectrometer(LRIS) at the Keck telescope, we obtained high quality spectra (S/N~100), covering 2300-5500A in the rest-frame, for a sample of 37 intermediate-luminosity AGN at z~0.4, in order to calibrate various black hole mass estimators based on the Mg II (2798A) and the Hbeta (4861A) emission lines.

After subtracting continuum and complex FeII emission under Mg II and Hbeta, we fit the broad emission lines using high order Guass-Hermite models to best constrain the profile and the width of the emission lines.

Combining the SDSS spectra covering Halpha emission line with the Keck spectra, we determine a set of 6 black hole masses for each object, based on the line width (MgII, Hbeta, and Halpha) and the luminosity (LMgII, LHbeta, LHalpha, L3000, L5100), and calibrate each black hole mass estimator.

We will present uncertainties and limitations of each mass estimator.

## [포GC-16] Calibrating the stellar velocity dispersion in near-IR

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The correlation between black hole mass and galaxy stellar velocity dispersion gives 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 spectra 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, particularly with the laser-guide-star adaptive optics. However, it is crucial to test whether the stellar velocity dispersion measured from the near-IR spectra is consistent with that measured from the optical spectra.

Using the TripleSpec at the Palomar 5-m Telescope, we obtained high quality spectra ranging from 1 to 2.4 micron for a sample of 35 nearby galaxies, for which dynamical black hole masses and optical stellar velocity dispersion measurements are available, in order to calibrate the stellar velocity dispersion in the near-IR. In this poster, we present the initial results based on 10 galaxies, with the stellar velocity dispersion measured in the H-band.