[구GC-25] Recalibrating virial black hole mass estimators

Dawoo Park & Jong-Hak Woo
Seoul National University

In understanding AGN physics, it is fundamental to determine black hole masses.

Based on the gas kinematics of the broad-line region, black hole masses can be derived from the product of the width of the broad emission lines and the continuum/line luminosities.

For a sample of 37 intermediate-luminosity AGN at z~0.4, we obtained high quality spectra (S/N~100) using the Low Resolution Imaging Spectrometer(LRIS) at the KECK telescope, in order to calibrate various black hole mass estimators based on the Mg II (2798Å), the Hβ (4861Å), and the Hα (6563Å) emission lines.

Based on our multicomponent fitting analysis, we subtract continuum, FeII emission, and host galaxy starlight, reducing systematic errors in measuring emission line widths.

Combining low S/N SDSS spectra with our high S/N keck spectra, we determine a set of ~30 black hole masses of the sample for each emission line. Then by comparing various sets of black hole masses, we internally calibrate each mass estimators and investigate uncertainties and limitations of each mass estimator.

This work has been supported by the Basic Science Research Program through the National Research Foundation of Korea funded by the Ministry of Education, Science and Technology (2010-0021558).

[구GC-26] Current Status of the Quasar Selections at z > 5 from Infrared Medium-deep Survey

Yiseul Jeon, Myungshin Im, Won-Kee Park, Ji Hoon Kim, Hyunsung Jun, Changsu Choi, Dohyeong Kim, Duho Kim, and Jueun Hong[1]
[1]*CEOU/Dept. of Physics and Astronomy, Seoul National University*

We describe the Infrared Medium-deep Survey (IMS), a survey of quasars in the early universe beyond z=5. IMS uses multi-wavelength archival data such as SDSS, CFHT-LS, UKIDSS, and SWIRE, which provide deep images over wide area enough for searching of high redshift bright quasars. In addition, we are carrying out J-band imaging survey with the depth of 23AB at UKIRT for up to 200 deg^2, of which 50 deg^2 is covered so far. For the quasar candidates at z~5.5, we are making observations with custom-made filters, which are more efficient to make robust quasar candidate samples in this redshift range. Because of the deeper survey depth and the unique methods, our IMS can provide a large number of high redshift quasars comparing with ongoing high redshift bright quasar survey. The high redshift quasars we confirm will give us with clues of the growth of super massive black holes and the metal enrichment history in the early universe.

This work was supported by the National Research Foundation of Korea (NRF) grant funded by the Korean government (MEST), No. 2009-0063616.