

## [KGC-16] The New Mass Estimator of Black Hole in Active Galaxies with Near Infrared Hydrogen Line

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About 50% of Active Galactic Nuclei (AGNs) are found to be red and dust-obscured. They are believed to be in an early dusty stage of AGNs evolution or affected by dust torus in the direction of line of sight. However, optical spectrum is affected by dust extinction, making it difficult to study their properties, such as FWHM and luminosity. In order to reveal the mass of central Black Hole (BH) in red AGN, we establish a new BH mass estimator for typical type1 AGNs using Near InfraRed (NIR) hydrogen line ( $P_\alpha$  and  $P_\beta$ ), since these lines are at longer wavelength, less affected by dust extinction than optical hydrogen lines, such as  $H_\alpha$  and  $H_\beta$ . To derive the new empirical formula, we use a sample of well-known 36 AGN with a wide BH mass range of  $10^6 - 10^9 M_\odot$ , where  $M_{BH}$ s are estimated by reverberation mapping method and single epoch method. The  $P_\alpha/P_\beta$  luminosities and FWHMs are derived by analyzing IRTF NIR spectra or taken from literature values. We show that luminosities and FWHMs of these lines correlate well with those of Balmer lines. Suggesting that Paschen and Balmer broad lines are originated from same region. Finally, we present the new  $M_{BH}$  formula that are based on  $P_\alpha/P_\beta$  luminosity and FWHM. We hope that our result will be used for investigating red AGNs.

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## [KGC-17] Rotation Measure of Giant Radio Galaxies

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Rotation Measure from five Giant Radio Galaxies (GRGs) are reported.