

BH Mass, Jet and Accretion Disk Connection: An Analysis of Radio-loud and Radio-quiet Quasars

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Surveys have shown radio-loud (RL) quasars constitute 10%-15% of the total quasar population and rest are radio-quiet (RQ). However, it is unknown if the radio-loud fraction or RLF (RL quasars/Total quasars) remains consistent among different parameter spaces. This study shows that RLF increases for increasing full width half maximum (FWHM) velocity of the H β and MgII broad emission line. Our data has been obtained from Shen et al. (2011) catalogue. Our sample consists of quasars with magnitude less than 19.1 and limited upto redshift 0.75 for H β and 1.9 for MgII. We are getting RLF for the H β and MgII broad emission line FWHM greater than 15000km/s is 0.577 and 0.408 respectively. To investigate the reason, in this preliminary study we analyse various properties like bolometric luminosity, optical continuum luminosity, black hole (BH) mass and accretion rate of RL quasars (RLQs) and RQ quasars (RQQs) sample which have FWHM greater than 15000km/s (High Broad Line or HBL). From the distributions we can conclude for all the properties in HBL,RLQs are having higher values than RQQs. We have predicted RLQs are intrinsically brighter than RQQs and also predicted BH mass-jet connection and accretion disk-jet connection from our results but to conclude anything more analysis is needed.

Primary author: Ms CHAKRABORTY, Avinanda (Presidency University)

Co-author: Mr BHATTACHARJEE, Anirban (Sul Ross State University)

Presenter: Ms CHAKRABORTY, Avinanda (Presidency University)

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