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Reverberation Mapping of Hamburg/ESO Catalog Quasars

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Quasars are a type of AGN with extremely bright luminosities in the optical region of the spectrum which are powered from the accretion process of in-falling matter into the SMBH near the center. This process creates notable features in the AGN spectrum including very broad emission lines which are emitted from the Broad-Line Region (BLR) outside of the SMBH. Although the geometry and the kinematics of the BLR are still not well understood, we are able to infer some basic information from the emission lines alone. Reverberation mapping is a method used to study the kinematics and geometry of the BLR and can also estimate the mass of the SMBH inside. This technique has been constantly improved and new spin-off techniques were created such as photometric reverberation mapping (PRM). In this study, we aim to use spectroscopic reverberation mapping and narrow band photometric reverberation mapping (PRM) to determine the BLR size of quasars through observing the H-beta emission line. Our quasar sample is drawn from the Hamburg/ESO catalog (HES) and photometric data is obtained from an on-going photometric monitoring program using the Thai Southern Hemisphere Telescope (TST). Data analysis is done using custom made python pipelines and publicly available software.

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