BLACK HOLE MASSES AND BROAD LINE REGION GEOMETRY OF QUASARS

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It is now believed that supermassive black holes (BHs) reside in the centres of practically all bulge galaxies. A number of relations scale the BH mass with host galaxy properties, in particular bulge luminosity and velocity dispersion. Concerning Active Galactic Nuclei (AGNs), the BH mass can be estimated given the size and velocity of the Broad Line Region (BLR) under the virial assumption. Reverberation mapping provides the most precise estimate of the radial size of BLR, however, the single-epoch method is less time-consuming and, therefore, applicable to larger samples. The BLR cloud velocity is usually inferred from the line width, assuming a deprojection factor *f*, responsible for the BLR geometry and kinematics. Thus, the BH mass expression can be disentangled into a putative part, the *f*-factor, and a measurable part, the so called virial product.

The aim of our study is to estimate and analyze the *f*-factors based on comparing the virial products and the BH masses determined on the base of host galaxy relations for high-luminosity AGNs. We present the detailed results for the flat spectrum radio quasar 3C 273, consistent with a disk-like BLR. The virial product is determined using the H_β, Mg II, and C IV lines, which allows a discussion on the BLR stratification.

STAR FORMATION IN THE HOST GALAXIES OF RADIO-QUIET QUASARS

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The far-infrared (FIR) and radio luminosities of star forming galaxies are involved in a tight linear empirical correlation over a wide range of galaxy types and magnitudes. Besides, the contribution of star formation in the radio emission of radio-quiet quasars (RQQs) is still an open issue. Generally, disentangling the share of the active galactic nuclei (AGNs) and host galaxies in the Spectral Energy Distributions (SEDs) is not trivial.

Considering the above arguments, we initiated a study on the star formation in RQQs. We constructed the FIR-to-UV SEDs and fitted them with models accounting for the accretion disk, torus, host galaxy stellar population, and cold dust using the AGNfitter code (Calistro Rivera et al. 2016). We present the results for Mrk 477, the closest obscured quasar (z=0.0377). Its innermost regions are scrutinized using high-resolution structure maps. Star formation (SF) parameters (history, age, rates in the optical and infrared, etc.) are estimated. We discuss the time delay between the AGN and the star formation triggering.

References

Calistro Rivera, G. et al. 2016, ApJ, 833, 98