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Extreme quasars at high redshift

The study of the AGN accreting close to the Eddington limit ($L/L_{\text{Edd}} \sim 1$) has taken an important role, due to their potential use as standard candles for cosmological applications. With the purpose to understand the physics of extreme quasar, we perform a spectroscopic analysis of a sample of highly accreting quasars at high redshift ($z \sim 2-3$). Our sample was observed with the OSIRIS spectrograph on the GTC 10.4 m telescope located at the Observatorio del Roque de los Muchachos in La Palma. The highly accreting quasars were identified using the 4D Eigenvector 1 formalism, which is able to organize type 1 quasars over a broad range of redshift and luminosity. The kinematic and physical properties of the broad line region have been derived by fitting the profiles of strong UV emission lines such as AlIII $\lambda 1860$, SiIII $\lambda 1892$ and CIII $\lambda 1909$. We find that AlIII $\lambda 1860$ can be associated with a low-ionization virialized sub-system. Sources show strong blueshifts in the high-ionization lines like in CIV $\lambda 1549$, indicating a relation between the high Eddington ratios and the productions of outflows. The characterization of extreme quasar allow to assemble large samples of extreme quasars from the latest data releases of the SDSS, especially useful for deriving independent estimates of Ω_M in the redshift range $1 < z < 3.5$.

Serdecznie zapraszam,
Agnieszka Majczyna