Examining the Variability in the Spectral Parameters of the Spectra of Blazar 3c273 Fitted with a Double Power-law

Shayaan Sajid, Saint Mary's University
Supervisor(s): Gallo, Luigi

Located at a distance of about 640 Mpc, 3C273 is the brightest quasar and has been studied in great detail since its discovery in 1963. The object is a supermassive black hole with a relativistic jet that is pointing towards our line of sight, and hence classifies as a blazar. The data analyses done on the 27 spectra, obtained from the XMM-Newton satellite over a period of 16 years in the 0.3-10 keV band, shows that the spectra can be best fitted with a double power-law model with average photon indices of 1.513 and 2.730. Further analyses of the double power-law model shows that the low-energy spectrum dominated by the steeper power law lies between 0.3-0.8 keV, whereas the high-energy band between 2-10 keV is dominated by the flatter power law. Like all the other blazars, 3C273 shows significant variability in its spectral parameters in both energy bands, and therefore the correlations between these spectral parameters as well as their variability over time are examined in order to obtain a physical model that can explain the overall variability over the past 16 years.