Abstract:

The standard model of a quasar is that an accretion disk, formed around a super massive black hole, emitting electromagnetic radiation in the entire range of wavelengths. From the spectrum of C IV absorption line based on simulations ran by Proga et al, it is apparent that the spectrum varies with inclination angle. It seems reasonable to ask whether or not there is a correlation between the absorption line-profile and the inclination angle at which a quasar is being observed so that one may infer the inclination for an observed quasar. Motivated by this, we used a radiative transfer code and IDL plotting routines to generate the absorption line-profiles for C IV of a simulated quasar for a range of inclination angles over a sequence of time frames. Specifically, we identified a point, referred to as the break-velocity, where the absorption profile breaks away from the continuum. It was found that while the break-velocity is sensitive to inclination angle, it is also very time-dependent. This time-dependence makes the sought simple correlation difficult to pin down. In future work one should disentangle effects of inclination angle and time variability.