

So far, observations are consistent with a wide range of electron densities, $n_e \sim 10^4$ to 10^9 cm^{-3} . Turnshek *et al.* (1985) have claimed a limit of $n_e > 10^6$ based on the critical density of the [O III] $\lambda 5007$ transition, and the apparent lack of broad (BALR) emission from this line in the Mg II BALQSO PG 1700+5153. However, the measurement of [O III] is somewhat problematic due to strong and ubiquitous iron emission in this object. Also, this object is much fainter intrinsically than most QSOs, and has (rare) low-ionization BALs, and so may not be indicative of BALQSOs in general.

Observations of another low-redshift BALQSO PG 1416–1256, also do not show evidence for broad [O III] emission (Turnshek and Grillmair 1986). Although intrinsically fainter than most BALQSOs, this object has less iron emission than PG 1700+5153 and no low-ionization (Mg II) BALs, and so may be more like the majority of (identified) BALQSOs.

2.5 : Distance Between the BALR and the Central Engine

Since the N V $\lambda 1240$ BAL often occults the Lyman- α BEL, and the C IV $\lambda 1549$ BAL sometimes occults the blue wing of the C IV BEL, it is generally argued that the BALR must lie outside the BELR. The size of the BELR has been restricted to be $\gtrsim 1 \text{ pc}$. This is based on the limit of $n_e < 10^{10}$ from the C III] $\lambda 1909$ critical density, the existence of this BEL, and estimates of U for the BELR. However, this assumes a homogeneous BELR— it is possible that the Lyman- α BEL clouds lie closer to the ionizing source than the C III] emitting clouds. Somewhat conflicting, upper limits on the BELR distance of $\sim 0.1 \text{ pc}$, come from BEL time variability in low redshift AGNs and QSOs. Unfortunately, studies of BEL variability in moderate redshift QSOs are relatively rare (Maoz *et al.* 1993).

Upper limits on the acceleration of the BALR have placed this region at least $\sim 3 \text{ pc}$ from the central engine (Foltz *et al.* 1987), although this result is somewhat model dependent.

The simplest limit can be estimated from the lack of velocity changes of BALQSOs observed for more than a decade. With outflow velocities of $\sim 40,000 \text{ km s}^{-1}$, the clouds