photoionizing source, r, cannot be estimated directly. We can only determine the product $n_e r^2$, and we are left with an ambiguity as to the distance of the BALR from the central engine. A graphical display of possible values of $\log(n_e)$ and r are shown in figure 14–2, for ionization parameters at the C^{+3} and O^{+5}. Ionization parameters of this order (or higher) are suggested by the results of this thesis project. The values are calculated for a V=17.7, z_e=2.12 QSO (*e.g.* UM 232), which is typical of the objects studied. A value of H_o=50 and q_o=0.5 are used to estimate L_ν.

Two lower limits are shown on n_e. The 10^4 limit is from the response of the BALs within a period of 3 months (QSO frame) in some BALQSOs. If the electron density were lower than this we would expect to see delays due to the finite time for recombinations (see §3.6). The 10^6 limit is from the lack of [O III] emission in at least two BALQSOs (see §2.4 and references therein).

The lower limit on distance is from the lack of acceleration in the absorption lines in 1303+3048 (Foltz *et al.* 1987). This limit was very model-dependent, however, a similar limit can be made by simple, rather conservative arguments based on the lack of velocity variations in *any* BALQSO over the last two decades.

The key to understanding the origin and formation of the BALR may be in detecting velocity variations in the structure of the BALs. We can make a reasonable guess that velocity variations should be detectable with very high resolution spectroscopy over the course of a human lifetime, based on the distance limits we have already estimated.

Future observations of time variability will eventually, in principle, allow us to determine more precisely the ionization and column density structure within the BALR, as well as determine the amount and distribution in velocity space of the resonance scattering from the BALR, and perhaps the geometrical structure of the BALRs surrounding QSOs.