Figure 3-4

In this figure, we show the curves relevant to BALs we can observe, *e.g.* C IV λ1549, Si IV λ1397, O VI λ1034, etc. The $1s^2 2s^1$ isoelectronic sequence (see chapter 9) is shown in solid lines, the $1s^2 2s^2 2p^6 3s^1$ sequence is shown as dotted lines, and the curve for neutral hydrogen is shown as a dashed line. Since we might see Fe III λ1122 in QSOs with the lower ionization BALs, Fe^{+3} is also shown as a dash-dot line. CLOUDY has no parameters for Phosphorus, so we have made a rough estimate for P^{+4} by averaging the curves for Si^{+4} and S^{+4} which have similar values of U_p(see figure 3-3). The peaks of these ions, in order of increasing Z, are: $U_p(C^{+3})=-1.86$, $U_p(N^{+4})=-1.29$, $U_p(O^{+5})=-0.64$, $U_p(Al^{+2})=-2.68$, $U_p(Si^{+3})=-2.08$, $U_p(S^{+5})=-1.27$, and the rough estimate for the peak for Phosphorus is $U_p(P^{+4})=-1.59$.

$N(H)=10^{18}$ was used, and both sides of the slab were averaged.