

Fig. 13.10 Charge distribution of an electron in a 1s and a 2s state

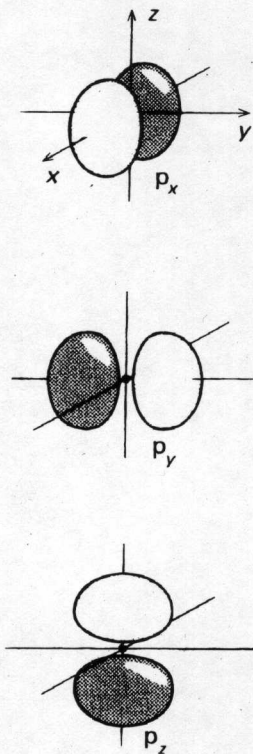


Fig. 13.15 Envelopes of 2p states (surfaces of constant density)

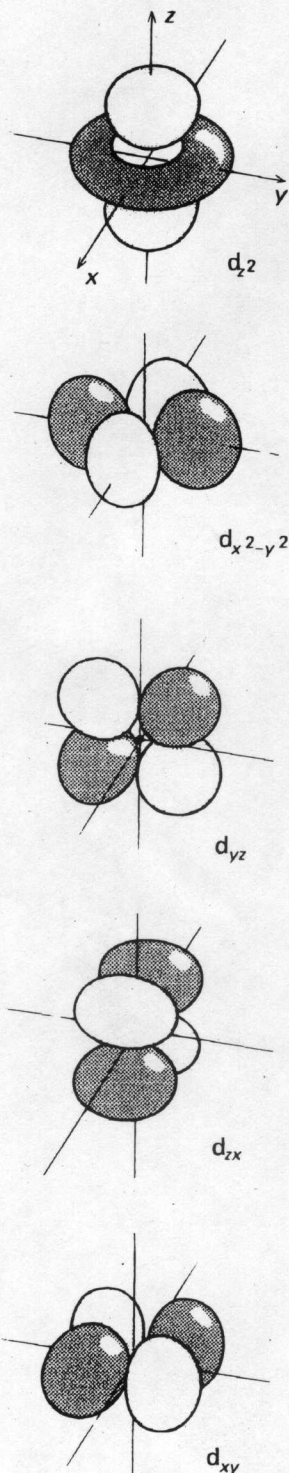
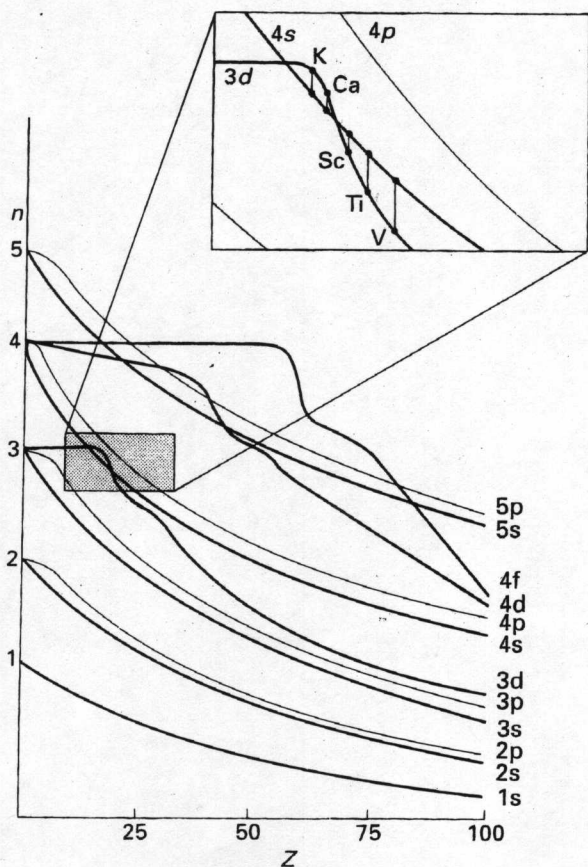
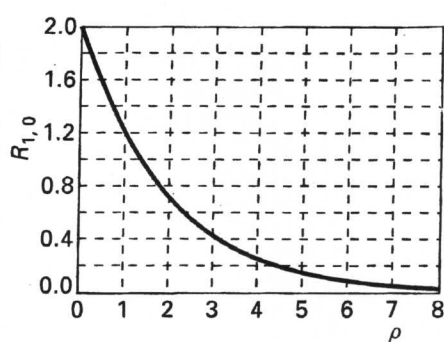


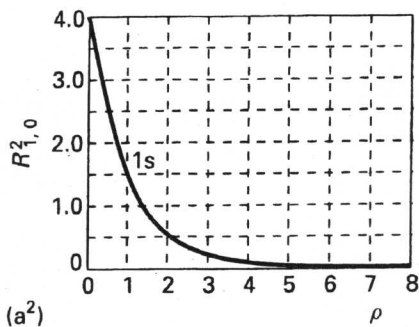
Fig. 13.16 Envelopes of five „arbitrarily“ chosen 3d states



← Fig. 13.21 Canonical orbital energies ϵ of neutral atoms: $\sqrt{1/-\epsilon} \sim \sqrt{1/IP}$ versus nuclear charge Z



(a) 1s



(a)²

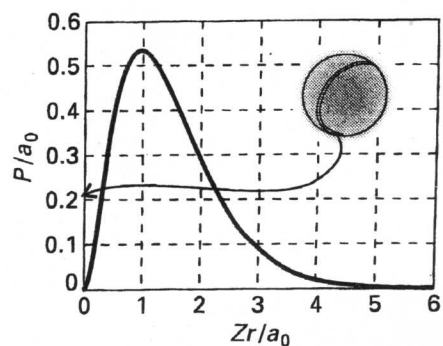
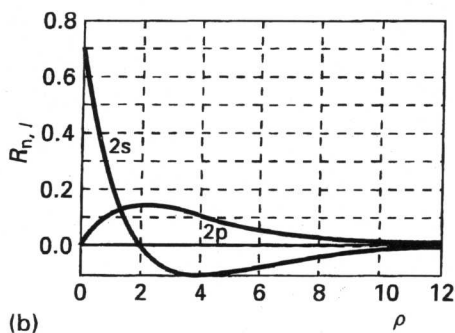
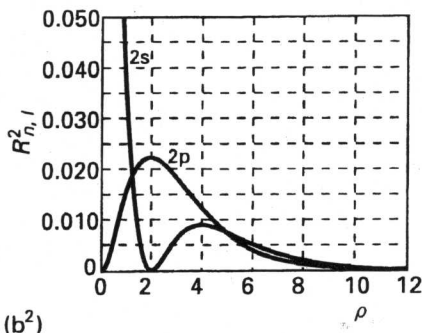


Fig. 13.14 Radial shell charge $4\pi r^2 R(r)^2$ for a 1s state



(b)



(b)²

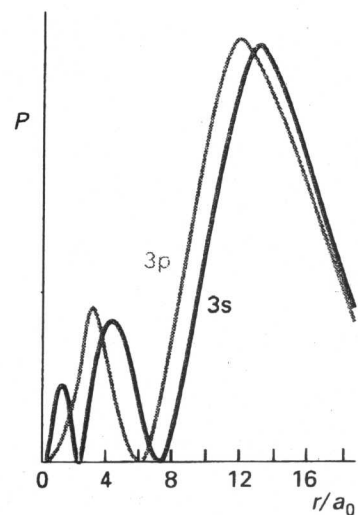
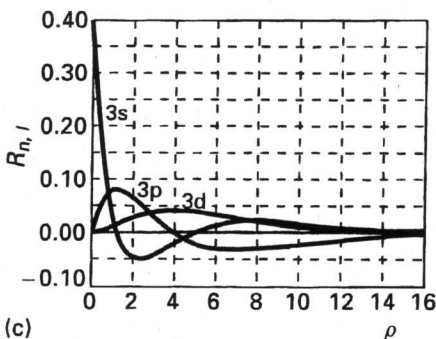


Fig. 13.20 Radial shell charge for hydrogenic 3s and 3p



(c)

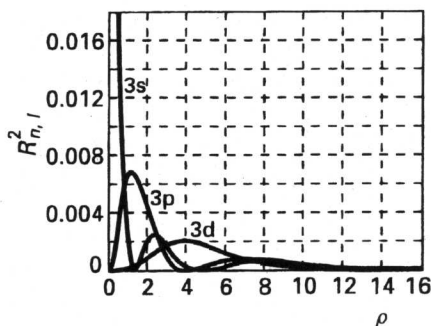


Fig. 13.5 Radial factor of hydrogenic orbitals. Left: $R(r)$; right: $R(r)^2$. Note the different scales

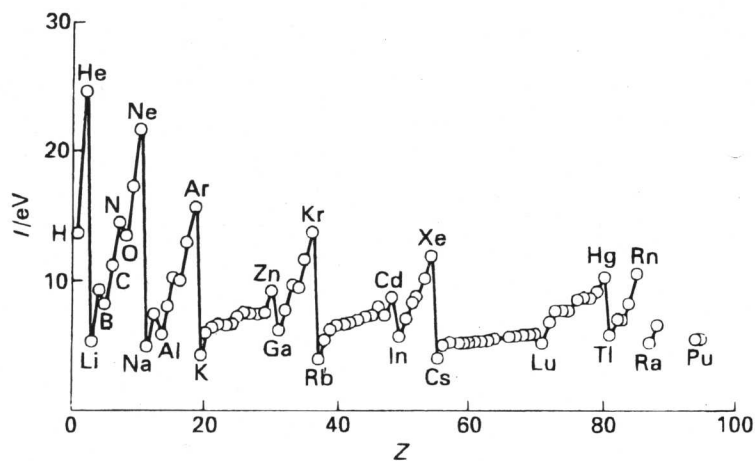


Fig. 13.22 1st ionisation potentials of the neutral atoms versus nuclear charge, corresponding to the atomic "HOMO" energies

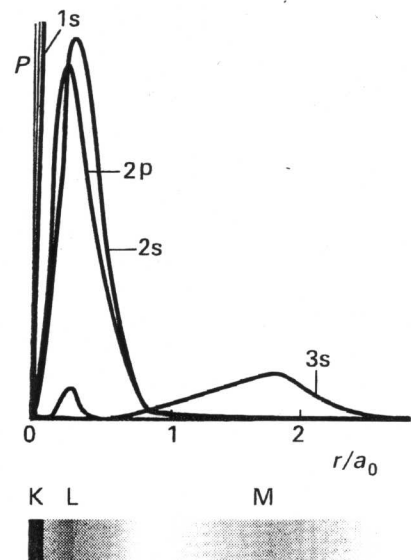


Fig. 13.23 Radial shell charges of the Na orbitals