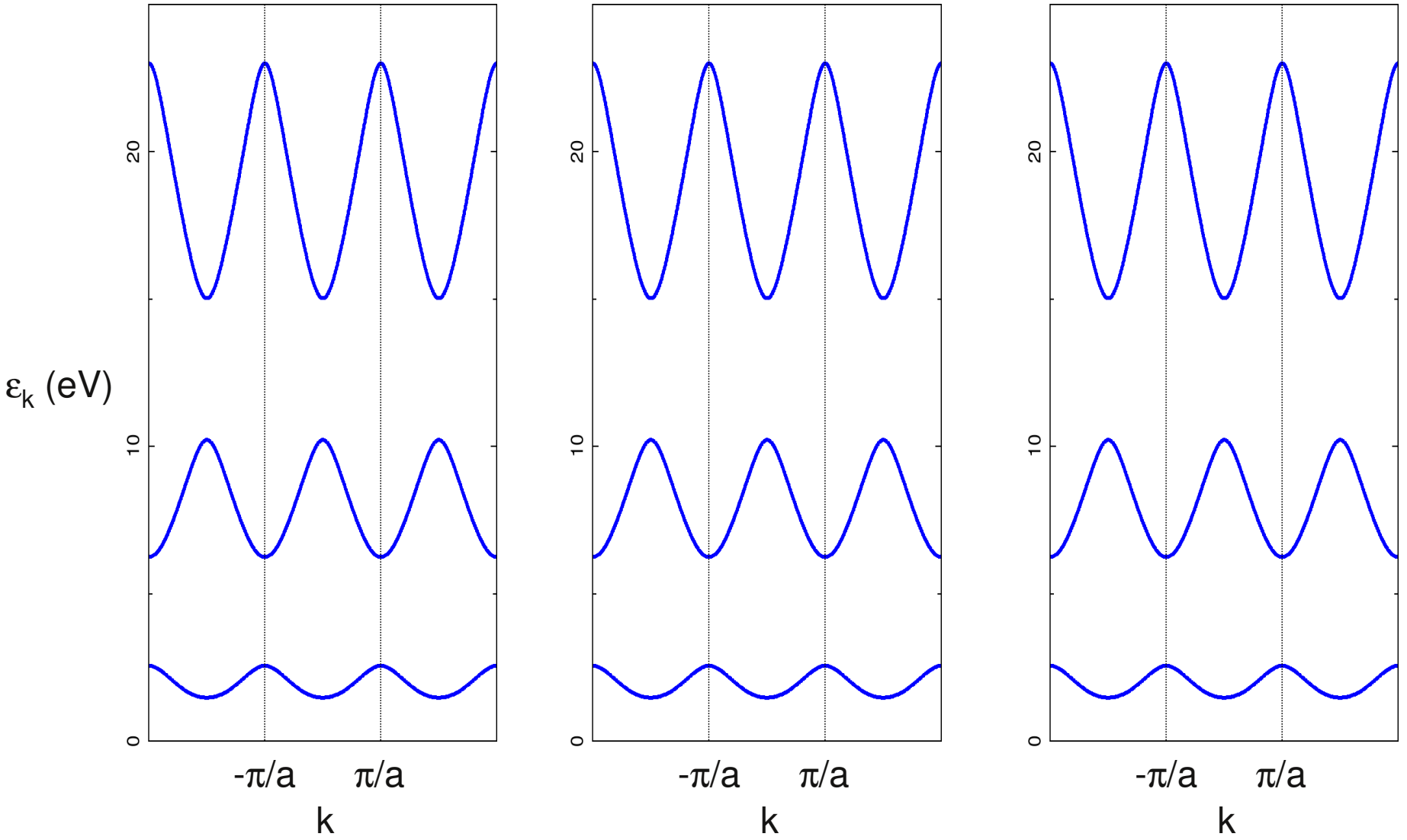
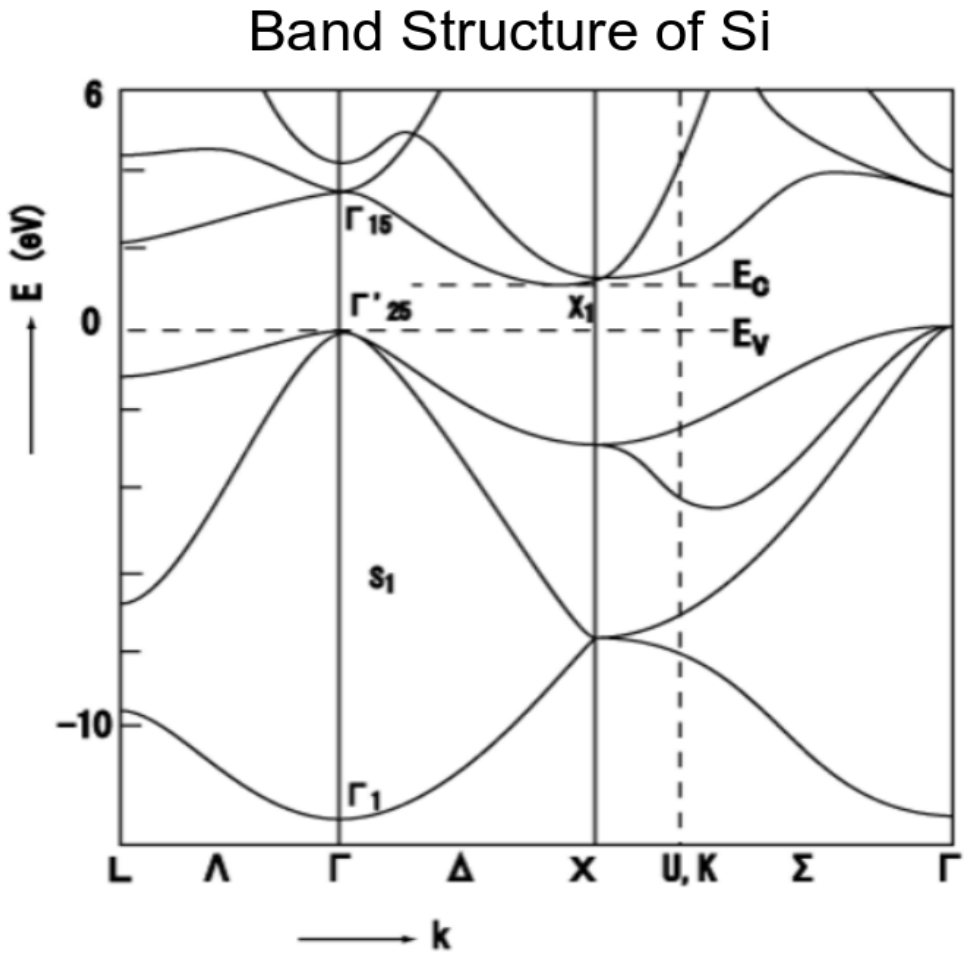
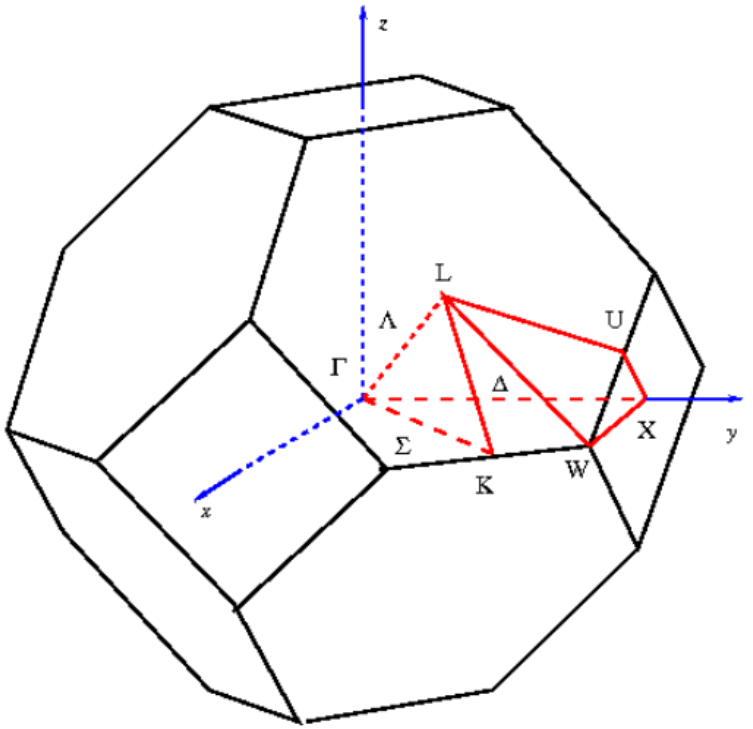
Consider a (a) 1D crystal of H, He, and Li. Indicate where the “Fermi energy” lies in each case. (There may be a range of possible values in some case.)



The following shows the band structure of Si from its 3sp orbitals.
Which are the σ bands? Which are the σ* bands? Where is the Fermi energy?

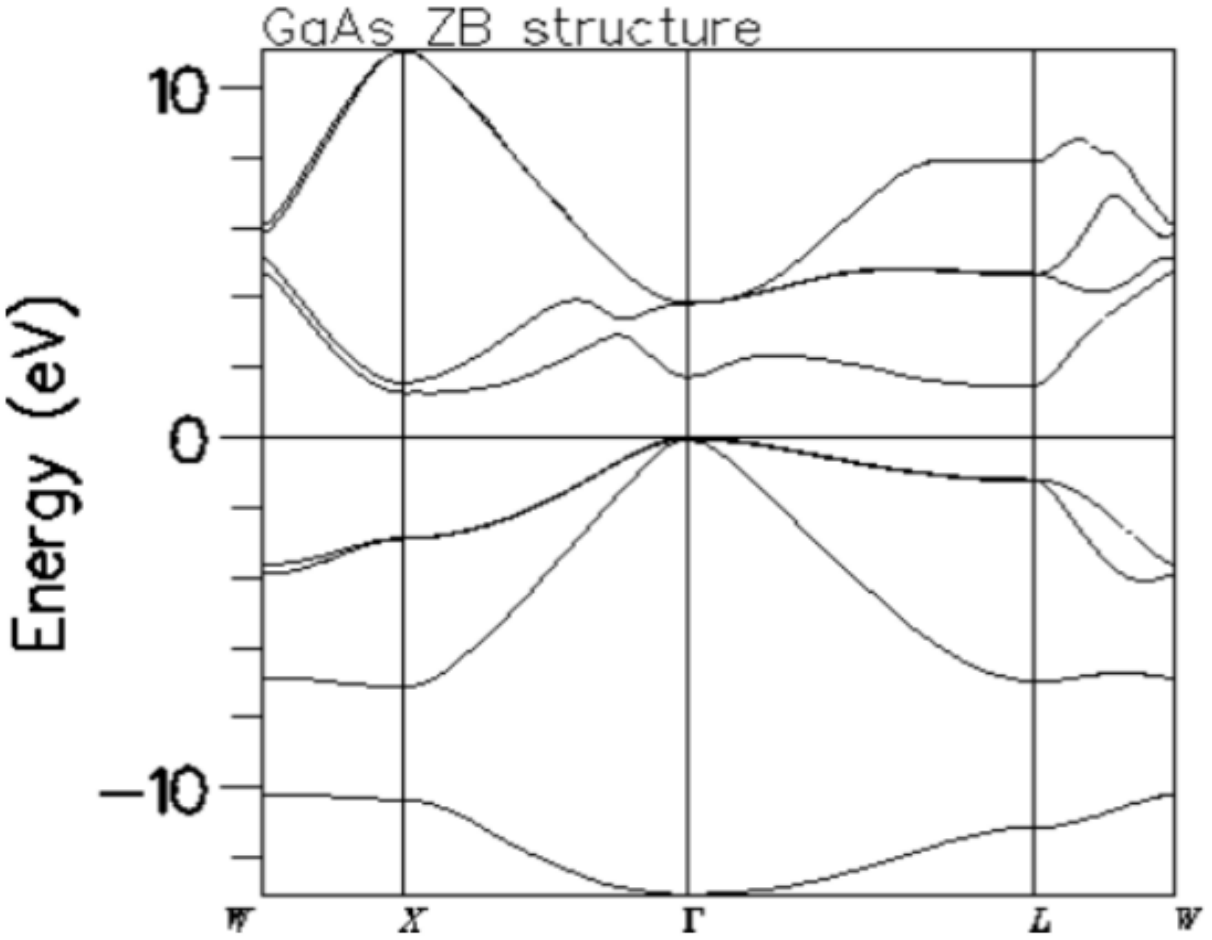


http://www2.warwick.ac.uk/



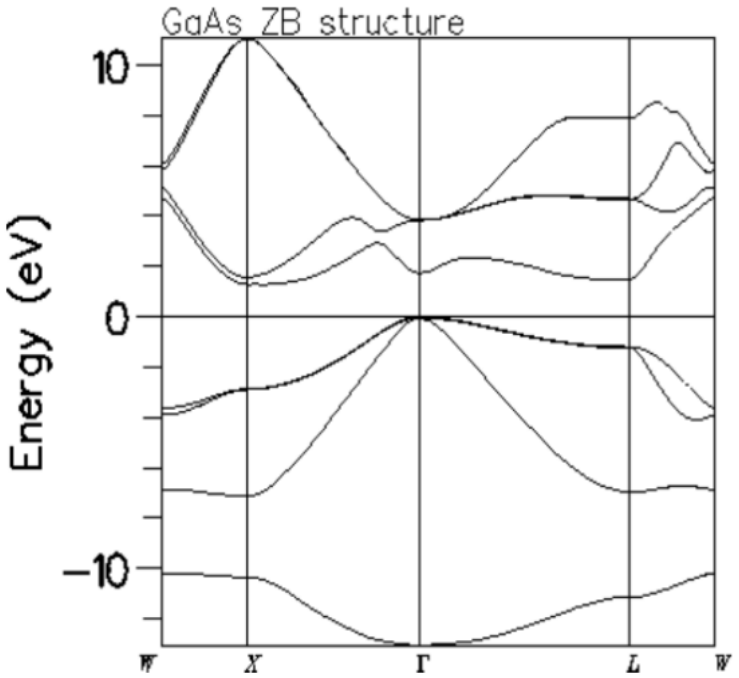
k space unit cell for fcc
Brillouin zone

The following shows the band structure of GaAs from its 4sp orbitals.
Which are the σ bands? Which are the σ* bands? Where is the Fermi energy?

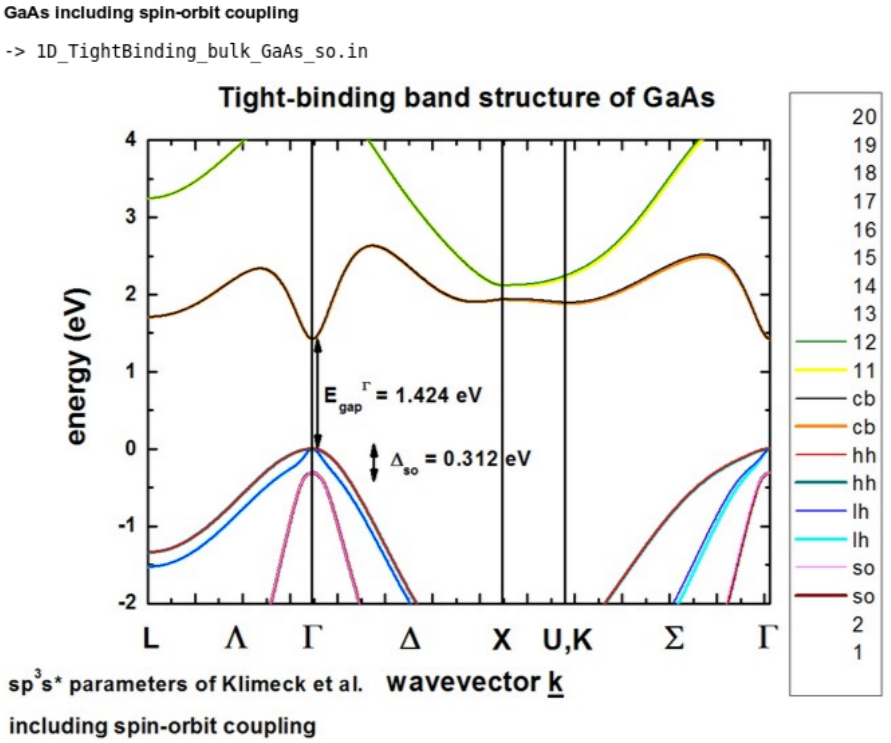


http://cmt.dur.ac.uk/sjc/thesis/thesis/node16.html

More realistic GaAs bands (on the right hand side).



http://cmt.dur.ac.uk/sjc/thesis/thesis/node16.html



http://www.nextnano.de/nextnano3/tutorial/1Dtutorial_TightBinding_bulk_GaAs_GaP.htm