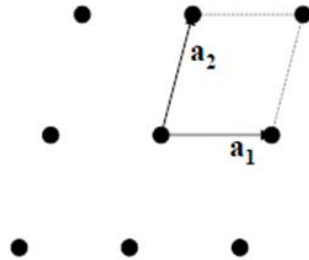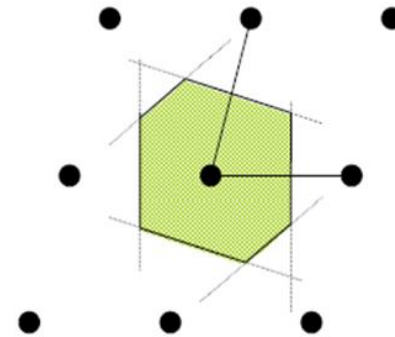# Wigner-Seitz cell

1. Wigner-Seitz 2D-cell:

It is the smallest possible primitive cell, which consist of one lattice point and all the surrounding space closer to it than to any other point.
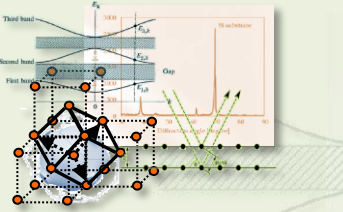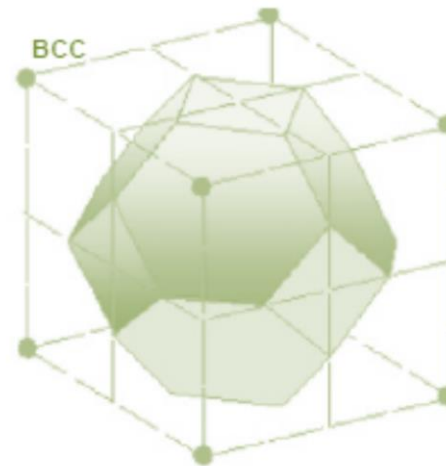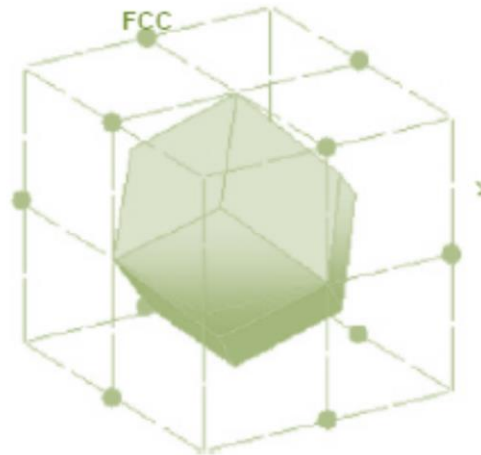

One possible Primitive Cell

Wigner-Seitz Cell -- Unique

- connect a lattice point to all nearby lattice points
- draw the perpendicular bisectors of lines
- find enclosed polygon with smallest volume

1. Wigner-Seitz 3D-cell:

The construction of the W-S cell in the *reciprocal lattice* gives the first *Brillouin zone* (important for diffraction).