

# Helpful Websites for Visualizing Lattices and Symmetry

“Making Matter”

[wwwold.ill.fr/dif/3D-crystals/](http://wwwold.ill.fr/dif/3D-crystals/)

“Crystal Lattice Structures”

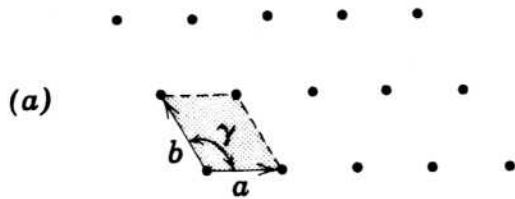
<http://cst-www.nrl.navy.mil/lattice>

“Introduction to Crystallography”

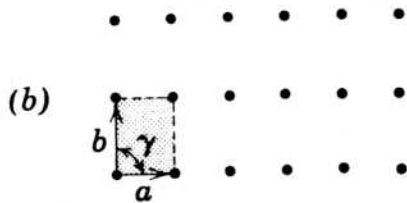
[www.rockhounds.com/rockshop/xtal](http://www.rockhounds.com/rockshop/xtal)

“3-D Crystal Lattice Structures”

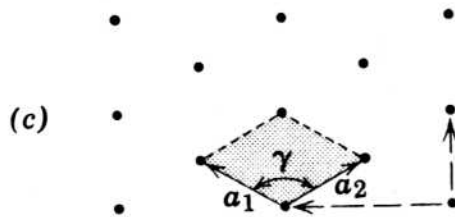
[http://wb.chem.lsu.edu/htdocs/people/sfwatk  
ins/MERLOT/flattice](http://wb.chem.lsu.edu/htdocs/people/sfwatk<br/>ins/MERLOT/flattice)



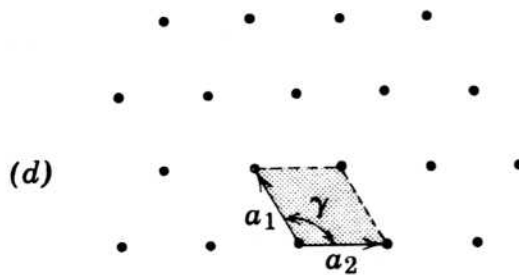
Parallelogram  
 $a \neq b$   
 $\gamma \neq 90^\circ$



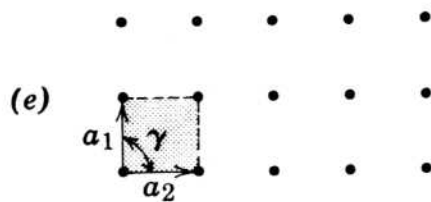
Rectangle  
 $a \neq b$   
 $\gamma = 90^\circ$



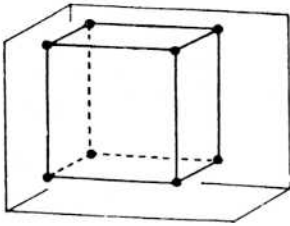
Diamond  
 $a_1 = a_2$   
 $\gamma \neq 90^\circ, 60^\circ, \text{ or } 120^\circ$



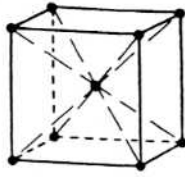
Rhombus  
 $a_1 = a_2$   
 $\gamma = 60^\circ, \text{ or } 120^\circ$



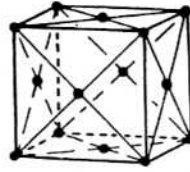
Square  
 $a_1 = a_2$   
 $\gamma = 90^\circ$



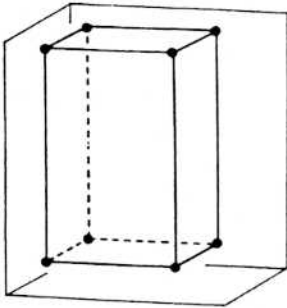
*Cubic P*



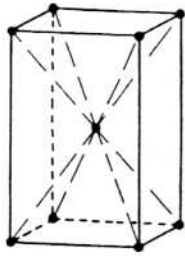
*Cubic I*



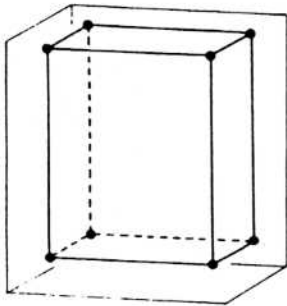
*Cubic F*



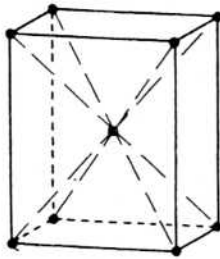
*Tetragonal P*



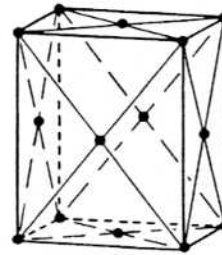
*Tetragonal I*



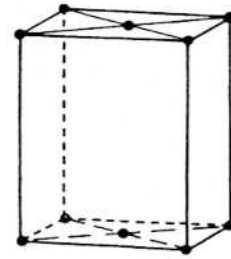
*Orthorhombic P*



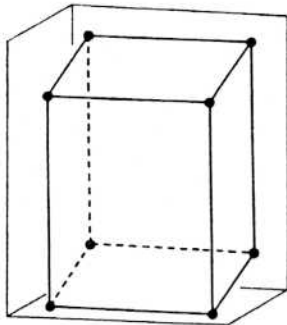
*Orthorhombic I*



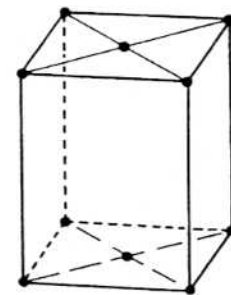
*Orthorhombic F*



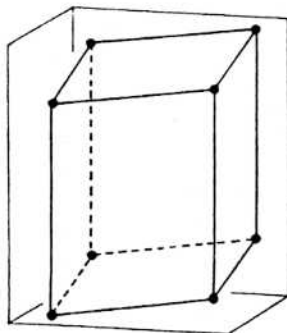
*Orthorhombic C*



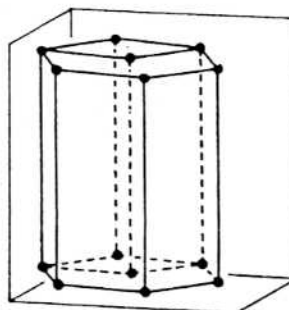
*Monoclinic P*



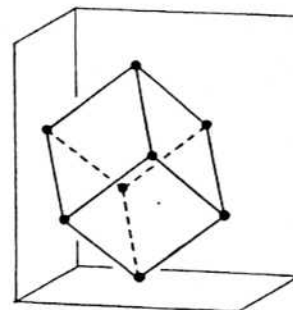
*Monoclinic C*



*Triclinic P*



*Hexagonal P (or C)*



*Rhombohedral R*