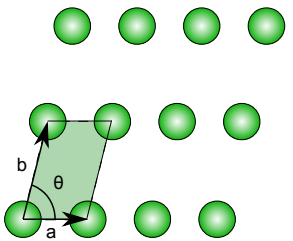
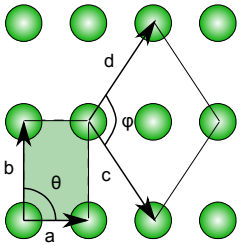
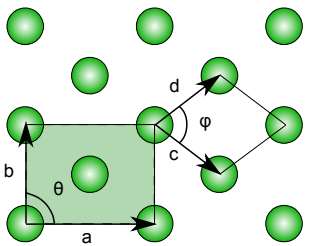
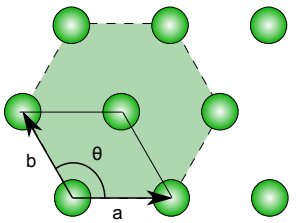
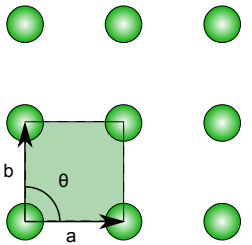
Sistemas cristalinos

Se definen en base a las longitudes de los vectores primitivos y al ángulo que forman entre si.

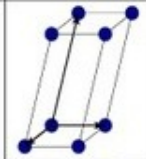
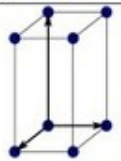
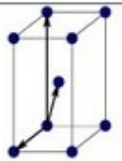
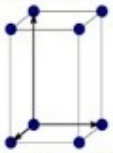
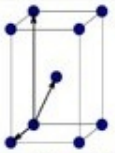
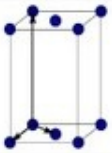
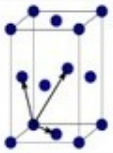
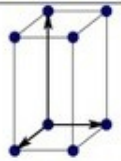
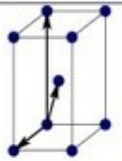
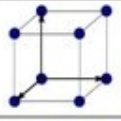
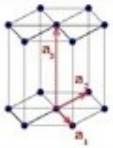
Sistema cristalino	Longitudes	Ángulos
cúbico	$a = b = c$	$\alpha = \beta = \gamma = 90^\circ$
trigonal	$a = b = c$	$\alpha = \beta = \gamma < 120^\circ, \neq 90^\circ$
hexagonal	$a = b \neq c$	$\alpha = \beta = 90^\circ, \gamma = 120^\circ$
tetragonal	$a = b \neq c$	$\alpha = \beta = \gamma = 90^\circ$
ortorómbico	$a \neq b \neq c$	$\alpha = \beta = \gamma = 90^\circ$
monoclínico	$a \neq b \neq c$	$\alpha = \beta = 90^\circ \neq \gamma$
triclínico	$a \neq b \neq c$	$\alpha \neq \beta \neq \gamma$

Redes de Bravais en 2D

	 rectangular  rectangular centrado		 cuadrada
$\lvert a\rvert \neq \lvert b\rvert$, $\theta \neq 90°$	$\lvert a\rvert \neq \lvert b\rvert$, $\theta = 90°$ $\lvert c\rvert = \lvert d\rvert$, $\varphi \neq 90°$	$\lvert a\rvert = \lvert b\rvert$, $\theta = 120°$	$\lvert a\rvert = \lvert b\rvert$, $\theta = 90°$
oblicuo	ortorrombico	hexagonal	tetragonal

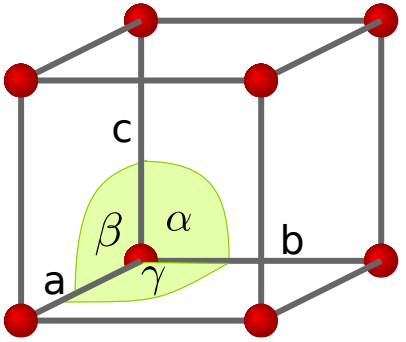
Redes de Bravais en 3D

Hay 14 redes de Bravais en tres dimensiones

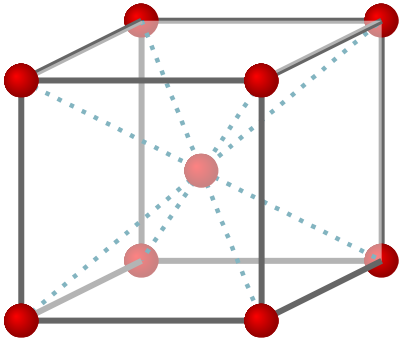
Bravais lattice	Parameters	Simple (P)	Volume centered (I)	Base centered (C)	Face centered (F)
Triclinic	$a_1 \neq a_2 \neq a_3$ $\alpha_{12} \neq \alpha_{23} \neq \alpha_{31}$				
Monoclinic	$a_1 \neq a_2 \neq a_3$ $\alpha_{23} = \alpha_{31} = 90°$ $\alpha_{12} \neq 90°$				
Orthorhombic	$a_1 \neq a_2 \neq a_3$ $\alpha_{12} = \alpha_{23} = \alpha_{31} = 90°$				
Tetragonal	$a_1 = a_2 \neq a_3$ $\alpha_{12} = \alpha_{23} = \alpha_{31} = 90°$				
Trigonal	$a_1 = a_2 = a_3$ $\alpha_{12} = \alpha_{23} = \alpha_{31} < 120°$				
Cubic	$a_1 = a_2 = a_3$ $\alpha_{12} = \alpha_{23} = \alpha_{31} = 90°$				
Hexagonal	$a_1 = a_2 \neq a_3$ $\alpha_{12} = 120°$ $\alpha_{23} = \alpha_{31} = 90°$				

Redes de Bravais en 3D

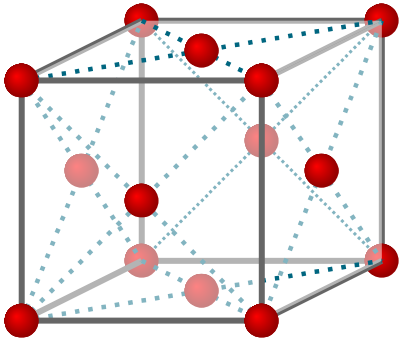
- Cúbica



cúbica simple (SC)



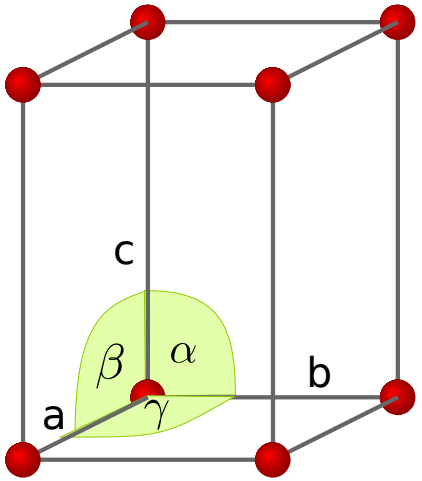
centrada en el cuerpo (BCC)



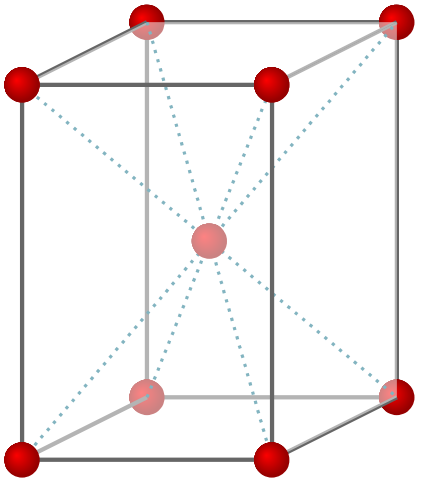
centrada en la cara (FCC)

Redes de Bravais en 3D

- Tetragonal



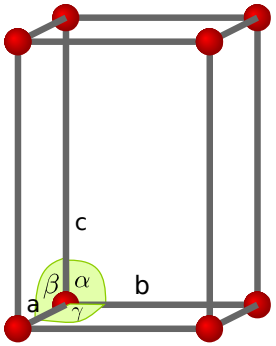
simple



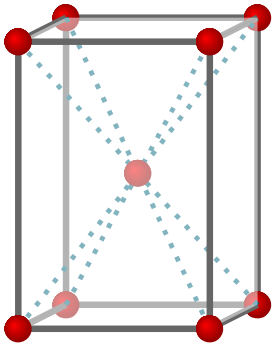
centrada en el cuerpo (BCT)

Redes de Bravais en 3D

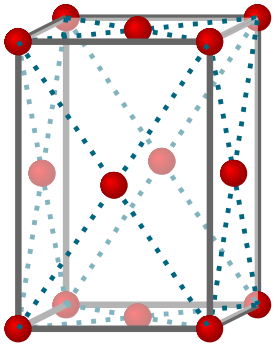
- Ortorómbica



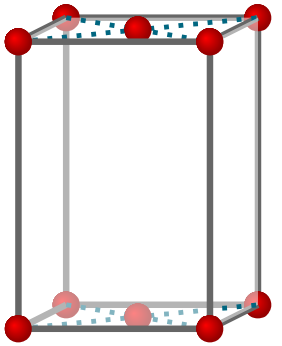
simple



centrada en el cuerpo



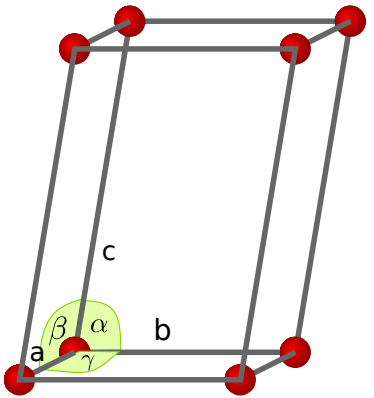
centrada en la cara



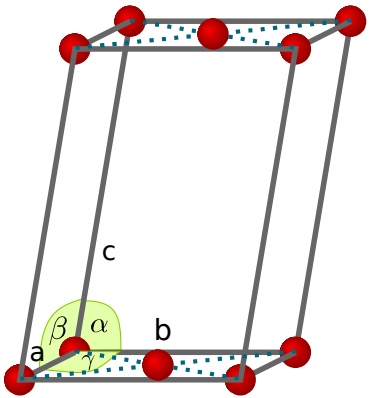
centrada en la base

Redes de Bravais en 3D

- Monoclínica



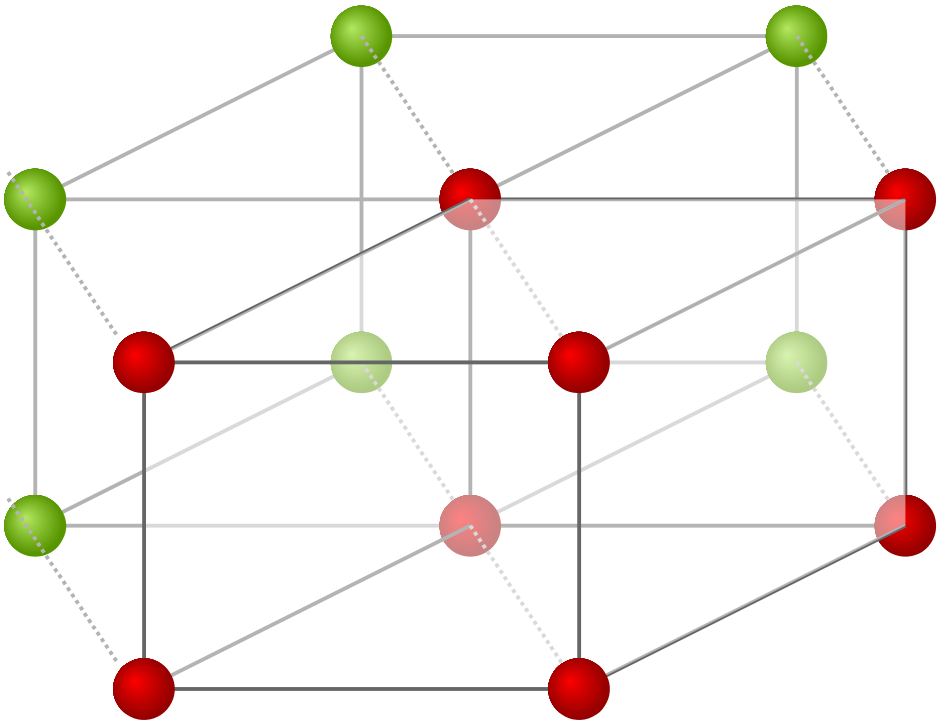
primitiva



centrada en la base

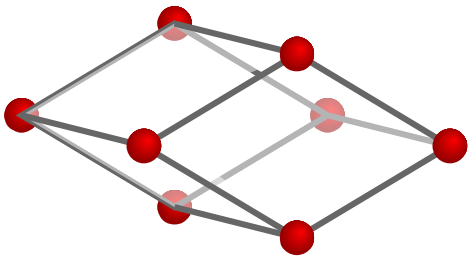
Redes de Bravais en 3D

- Hexagonal

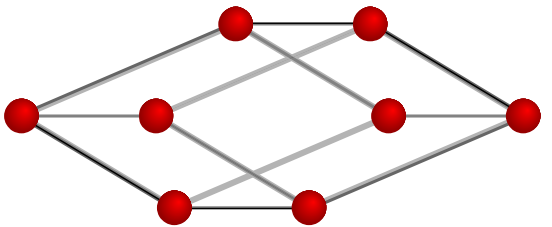


Redes de Bravais en 3D

- Trigonal y triclínica

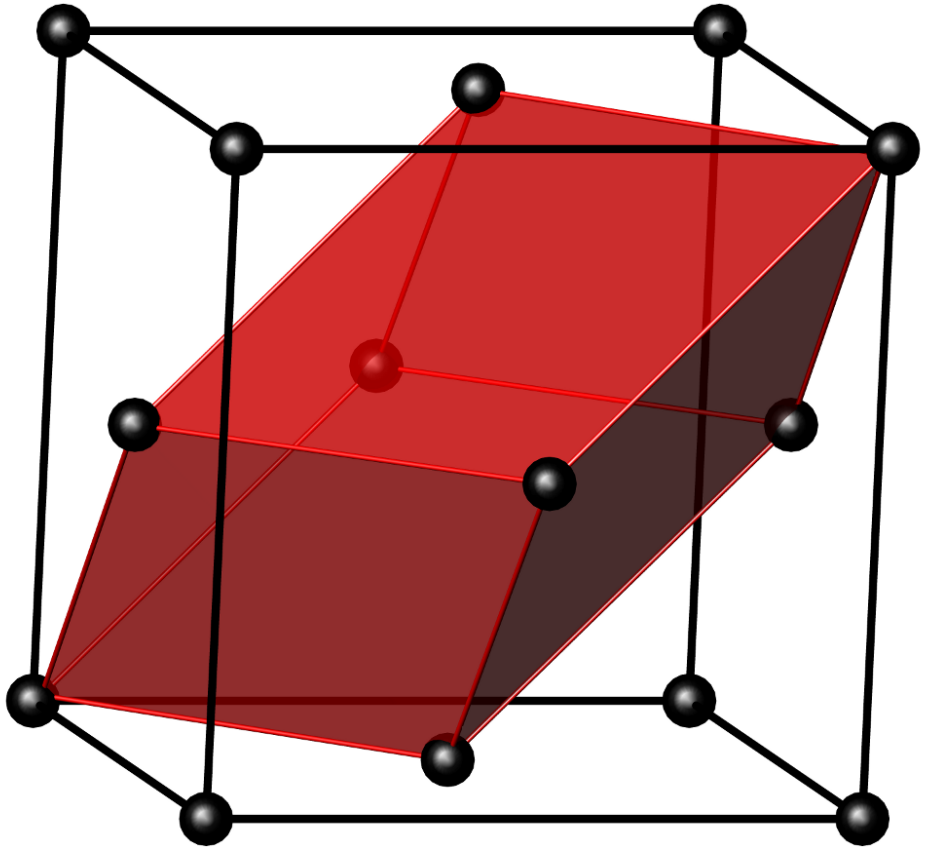


trigonal

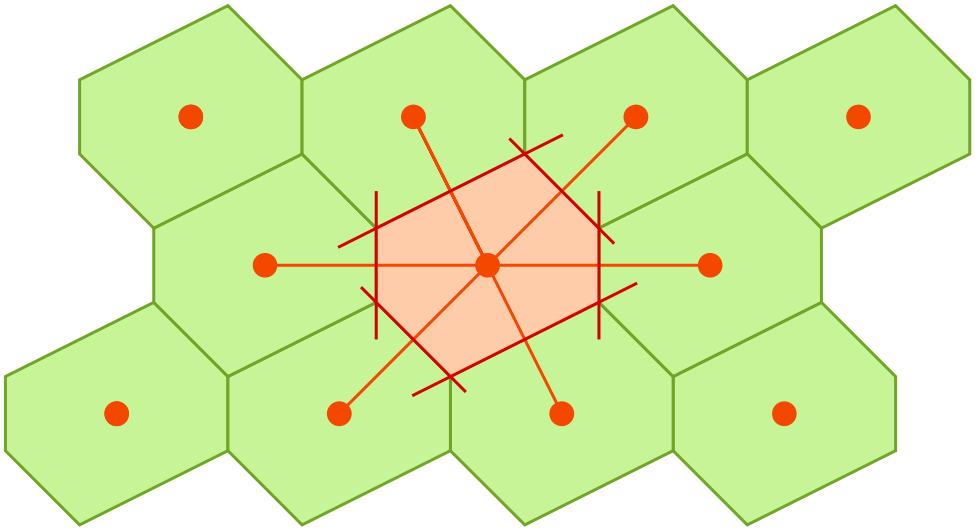


triclinica

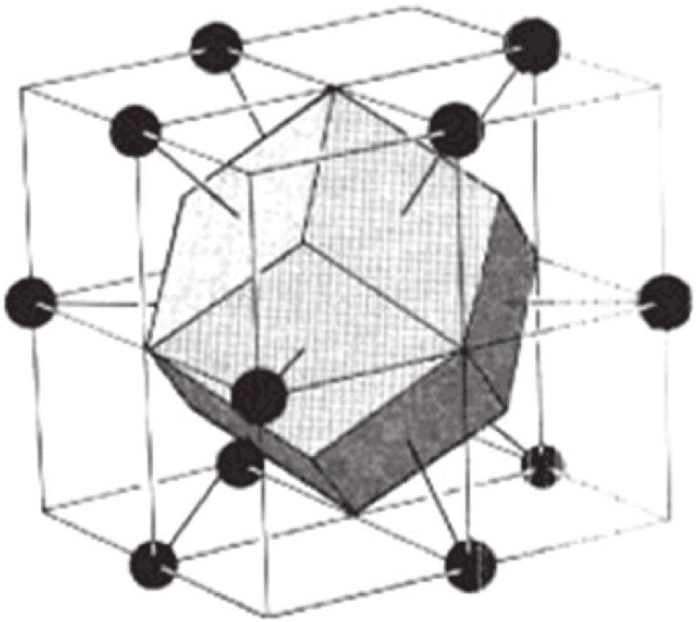
Celda primitiva FCC



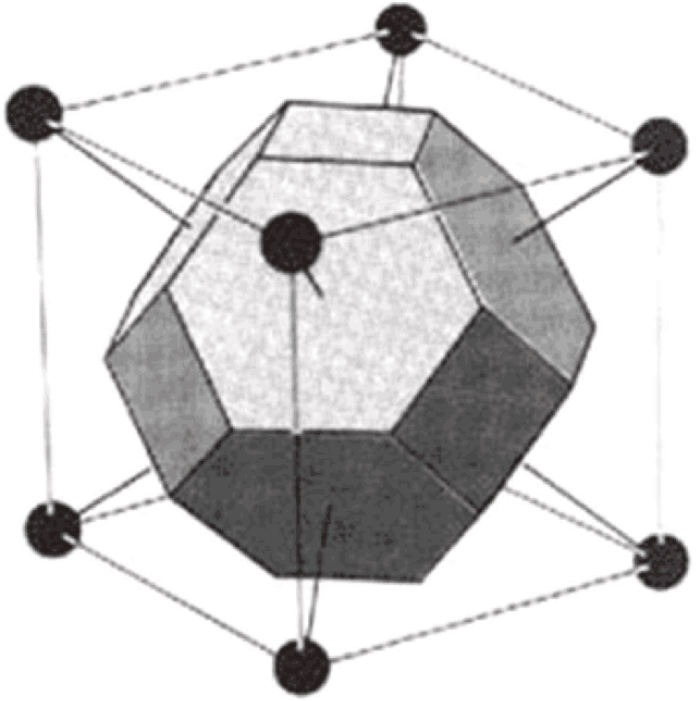
Celda de Wigner-Seitz



Celda de Wigner-Seitz



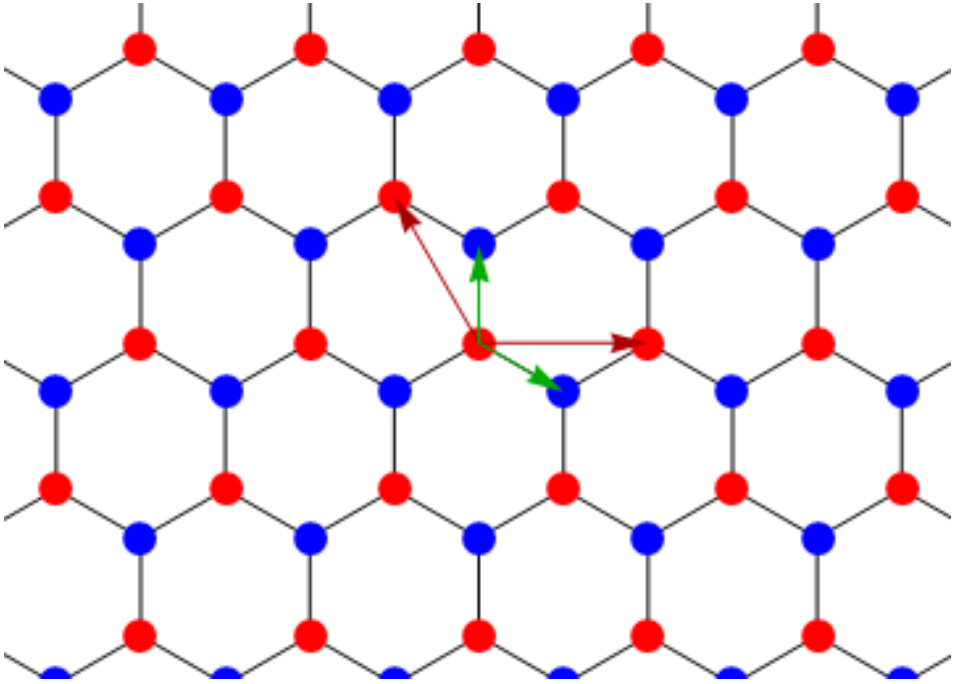
Face Centered Cubic



Body Centered Cubic

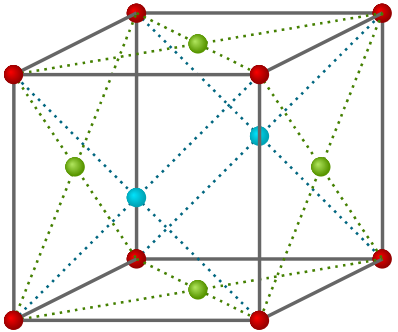
Estructuras cristalinas

Grafeno



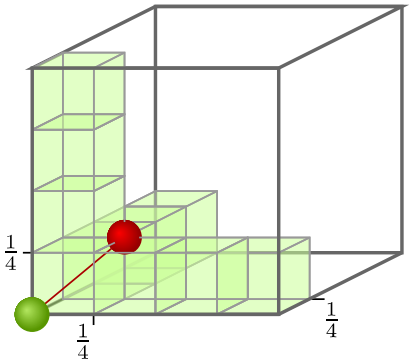
Estructuras cristalinas

Diamante

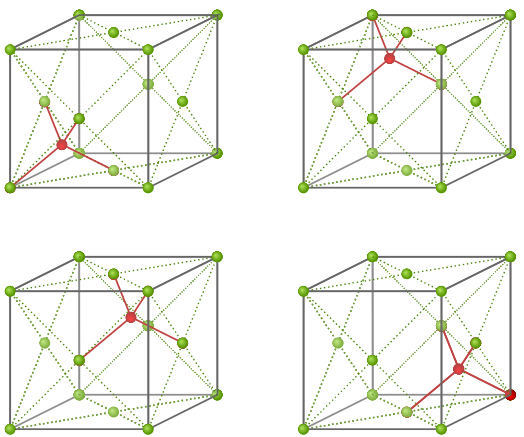


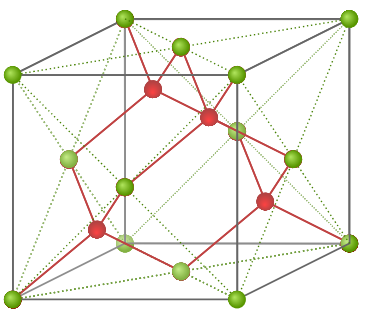
fcc structure

+

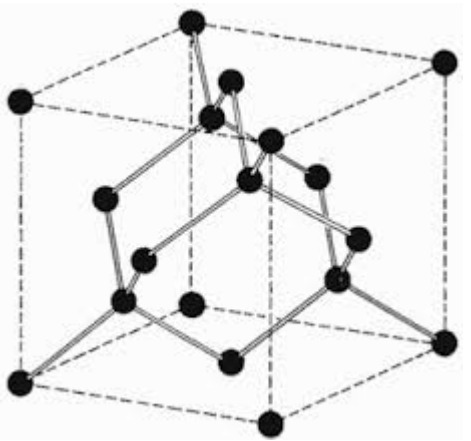


two-atomic basis



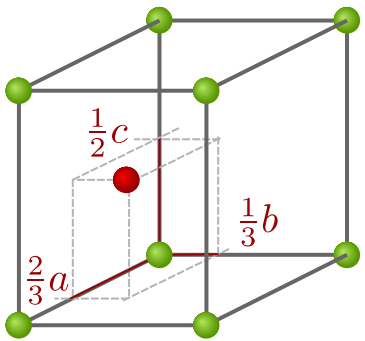


diamond structure

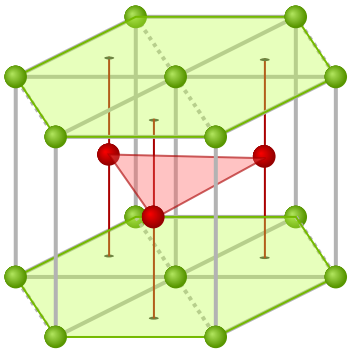


Estructuras cristalinas

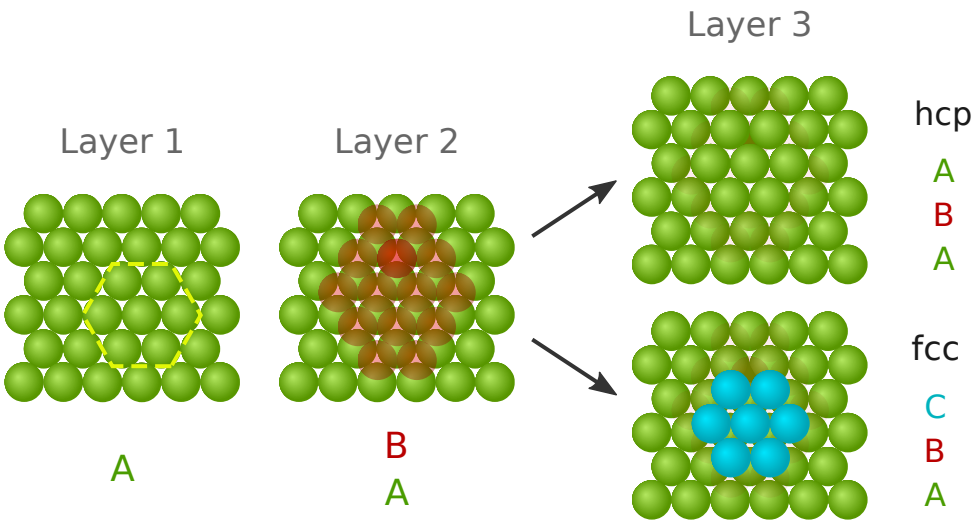
HCP



(a)

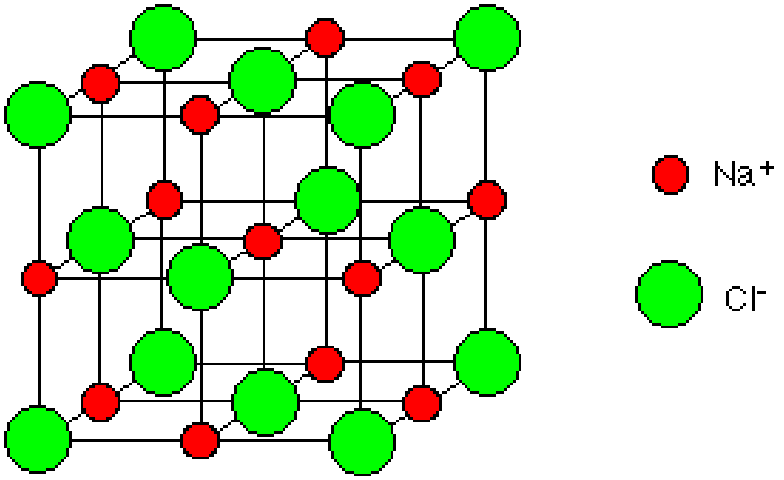


(b)

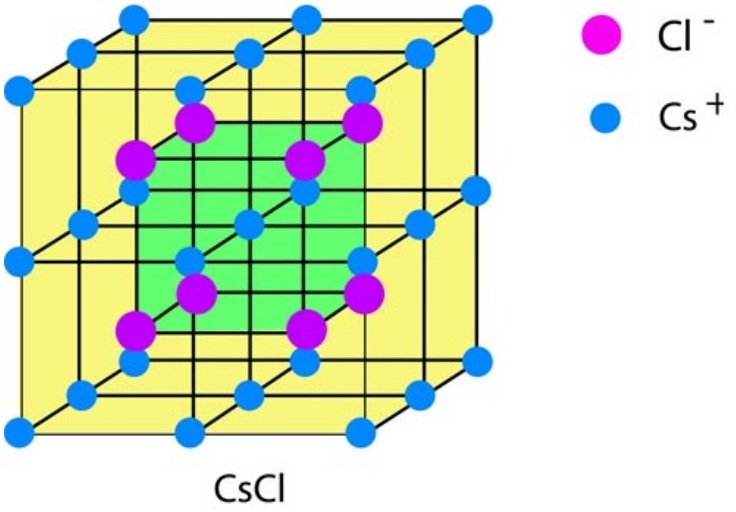


Estructuras cristalinas

Cloruro de sodio



Cloruro de cesio



Estructuras cristalinas

Zincblenda