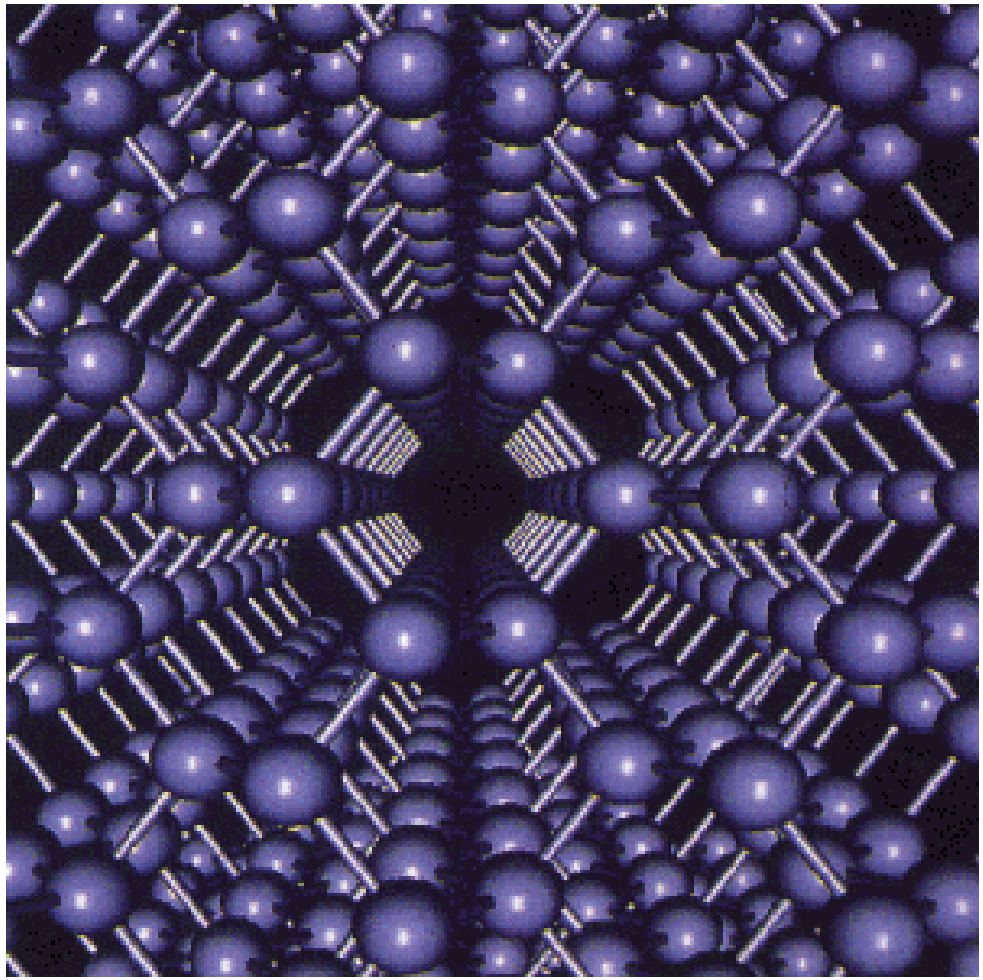
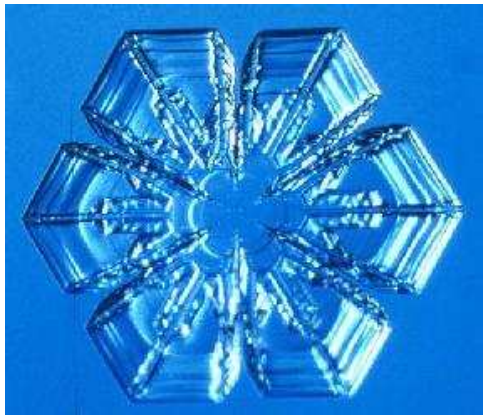
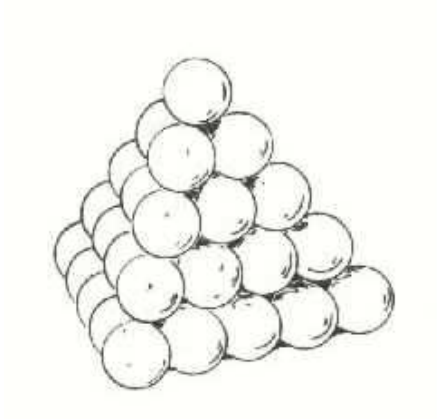
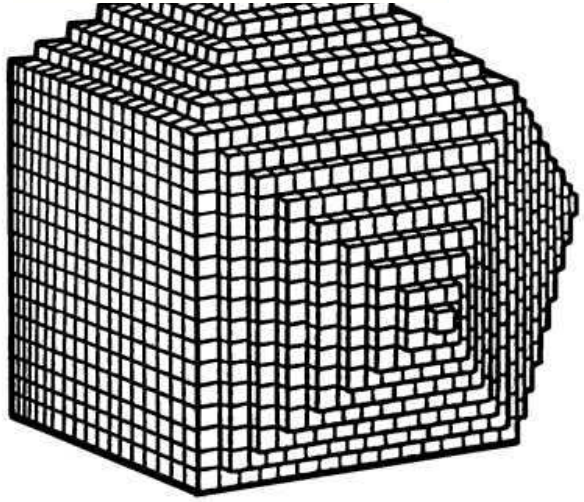
1. Kristallstrukturen



Äußere Gestalt spiegelt inneren Aufbau wieder



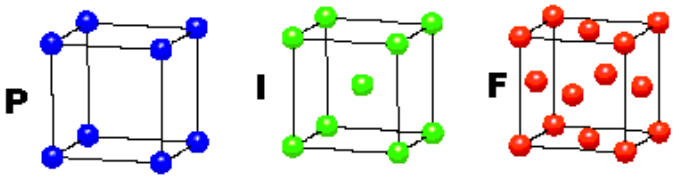




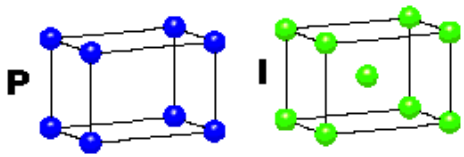
René Just Haüy

14 Bravais-Gitter mit unterschiedlicher Raumsymmetrie

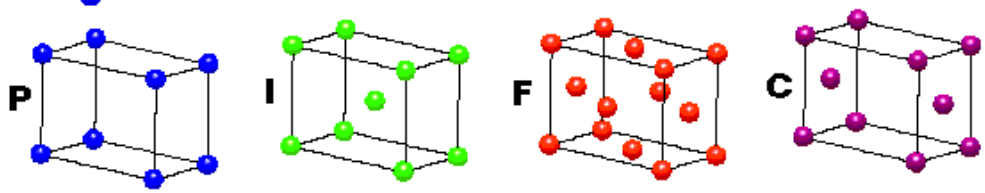
CUBIC
$a = b = c$
$\alpha = \beta = \gamma = 90°$



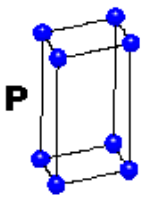
TETRAGONAL
$a = b \neq c$
$\alpha = \beta = \gamma = 90°$



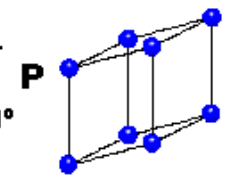
ORTHORHOMBIC
$a \neq b \neq c$
$\alpha = \beta = \gamma = 90°$



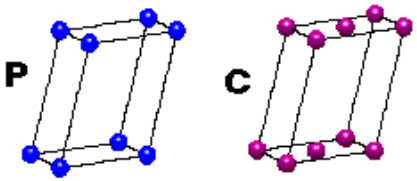
HEXAGONAL
$a = b \neq c$
$\alpha = \beta = 90°$
$\gamma = 120°$



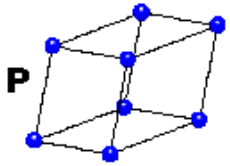
TRIGONAL
$a = b = c$
$\alpha = \beta = \gamma \neq 90°$



MONOCLINIC
$a \neq b \neq c$
$\alpha = \gamma = 90°$
$\beta \neq 120°$



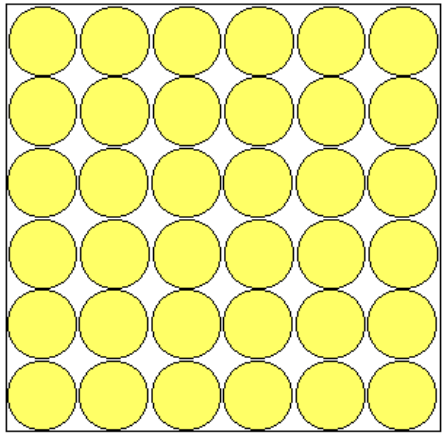
TRICLINIC
$a \neq b \neq c$
$\alpha \neq \beta \neq \gamma \neq 90°$



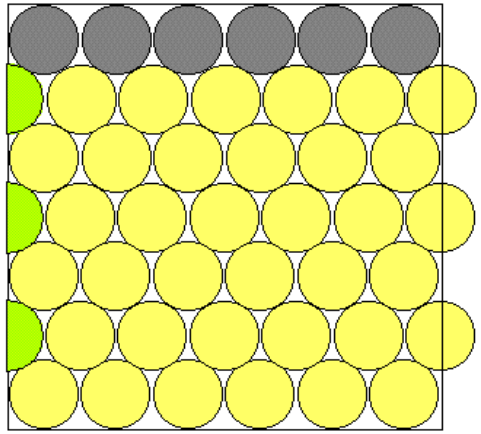
4 Types of Unit Cell
P = Primitive
I = Body-Centred
F = Face-Centred
C = Side-Centred
+
7 Crystal Classes
→ 14 Bravais Lattices

Kugelpackungen bei gleich großen Atomen

Kubisch

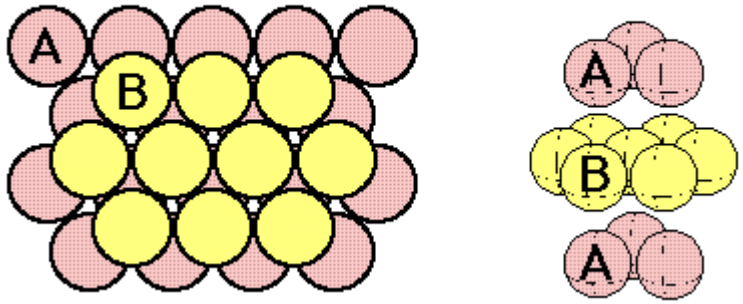


hexagonal



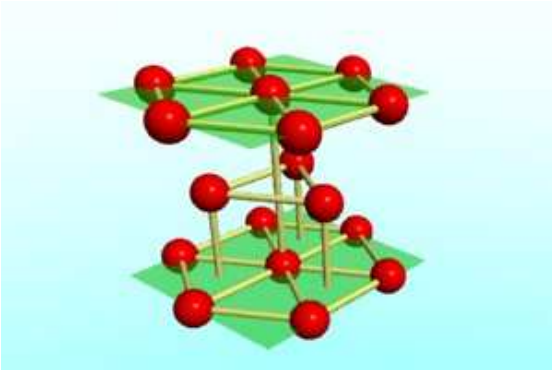
Abfolge der hexagonal gepackten Lagen:

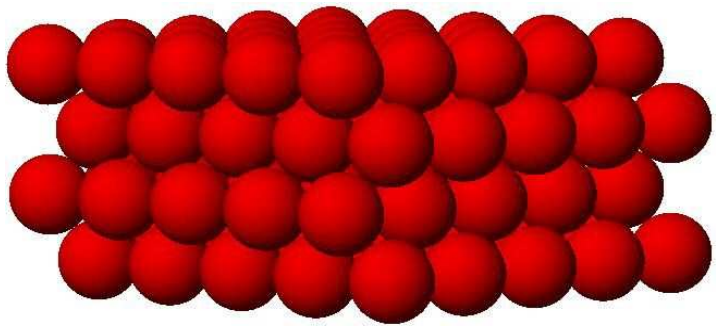
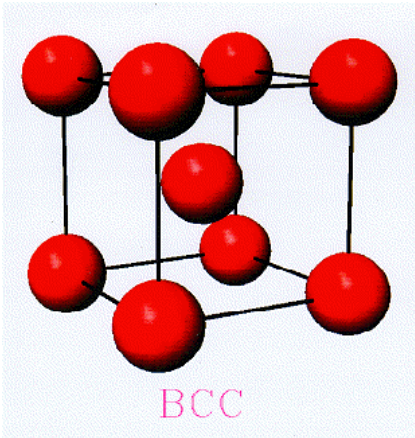
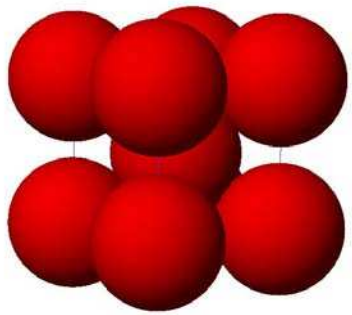
Hexagonal close packing (ABABAB...)



Hexagonal dichteste Kugelpackung

Drei-dimensionale Ansicht der hexagonal dichtesten Kugelpackung





Drei-dimensionale Ansicht der raumzentrierten Kugelpackung