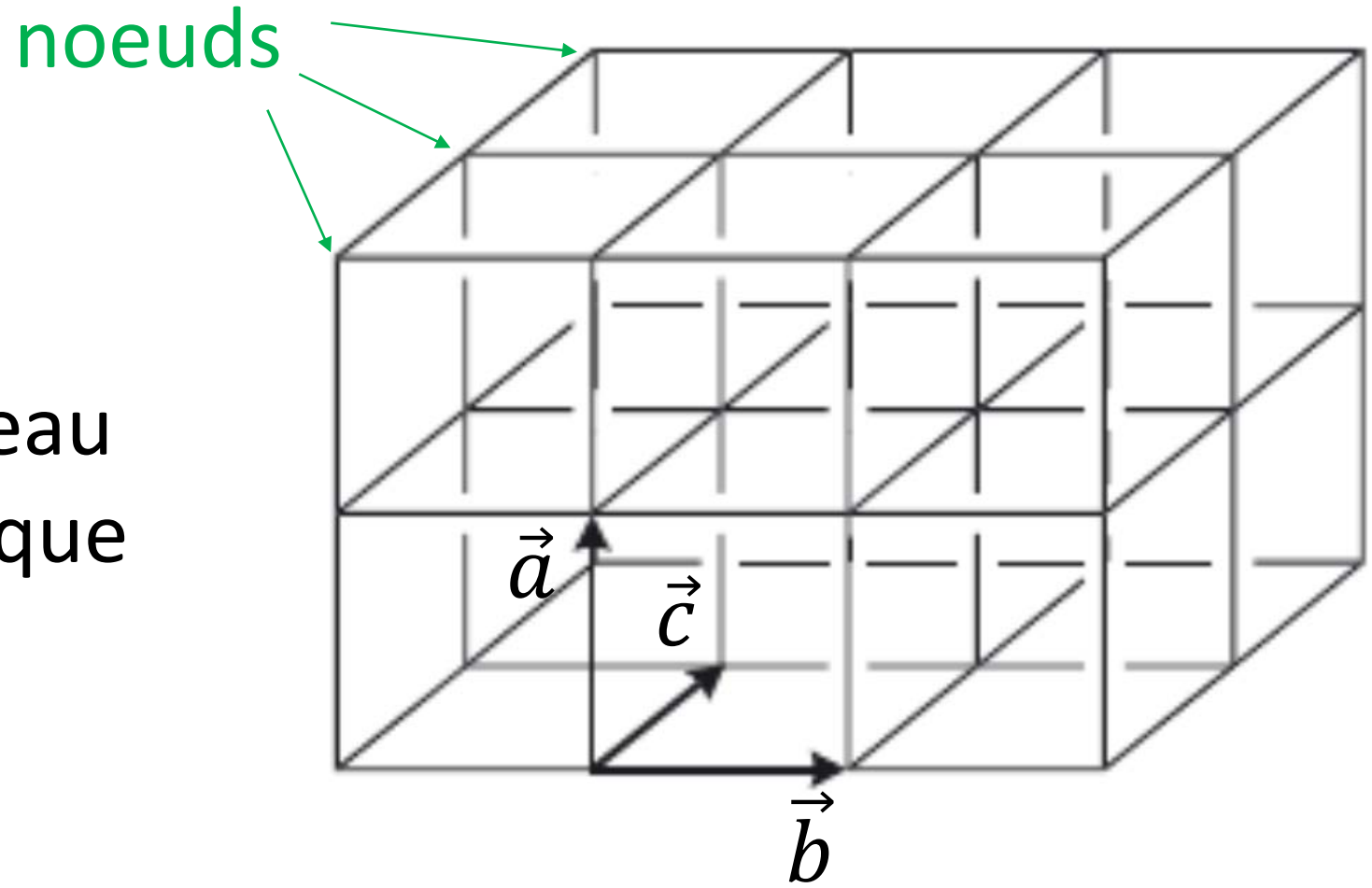
LC17 : Solides cristallins

Réseau et noeuds

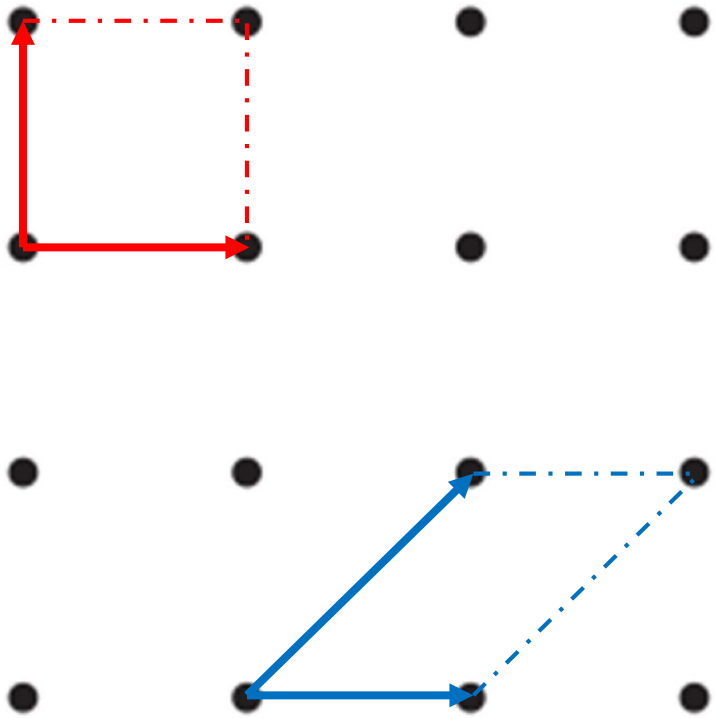
Réseau cubique



Bruno FOSSET, Jean-Bernard BAUDIN et Frédéric LAHITETE. Chimie tout-en-un PCSI.Dunod, 2016.

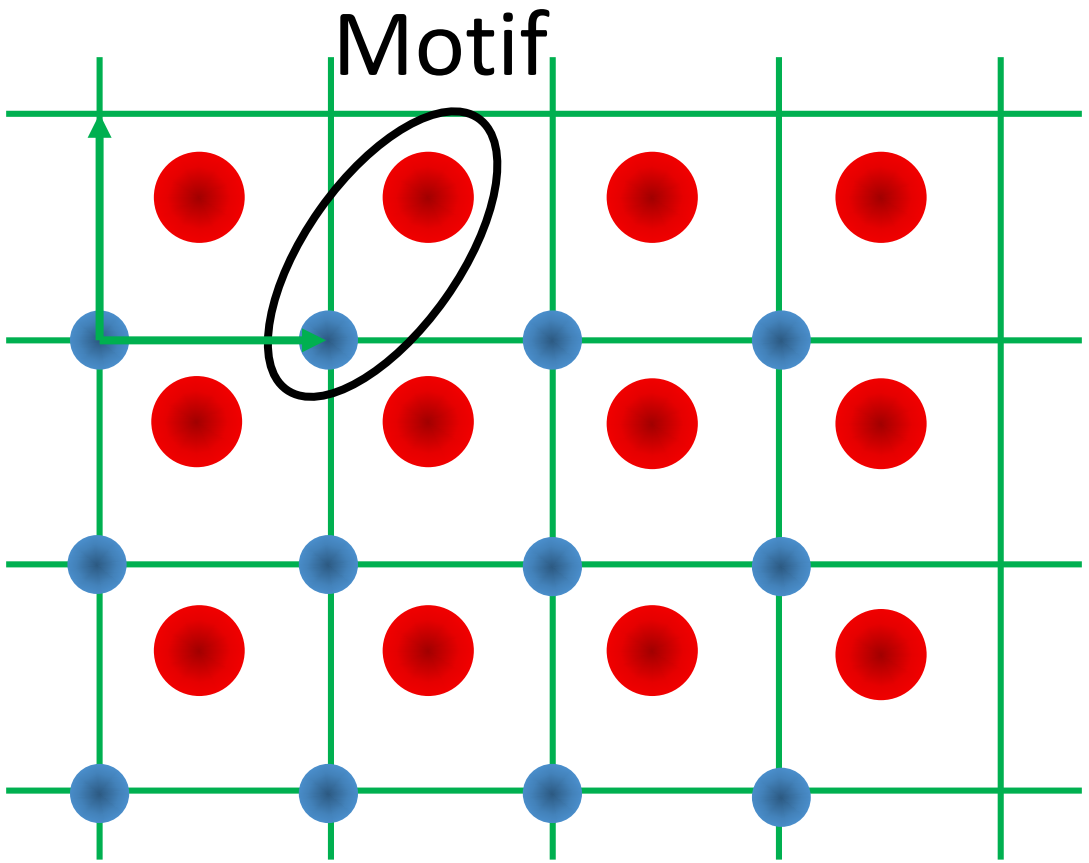
Illustration du concept de maille (2D)

Deux exemples de mailles pour un réseau carré

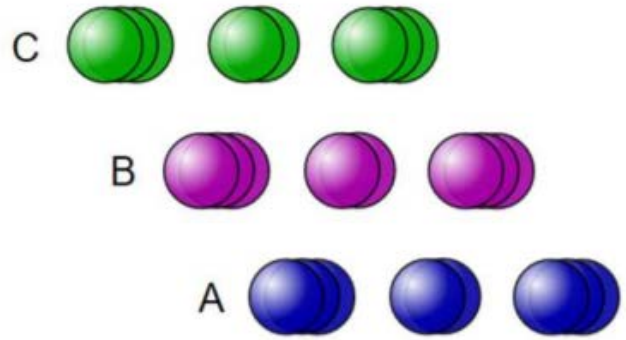


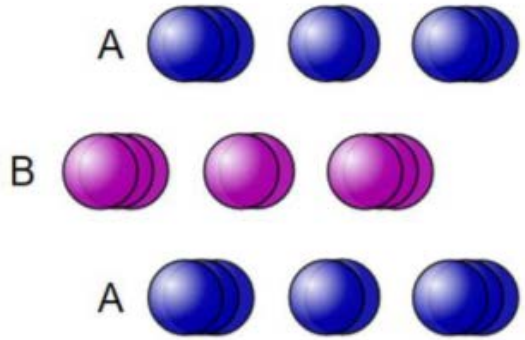
Réseau + motif = cristal

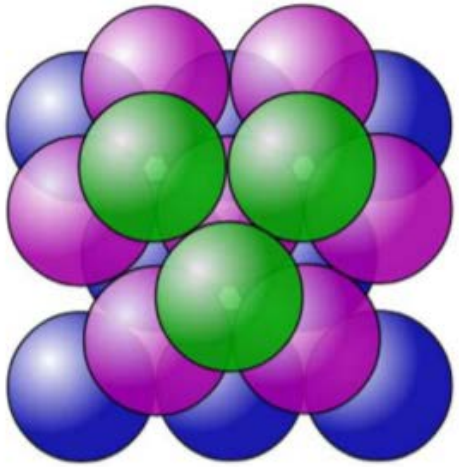
Réseau carré



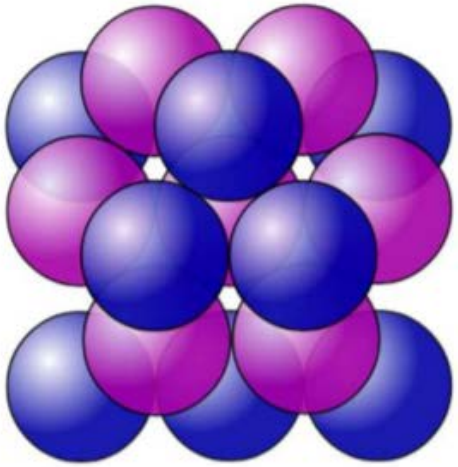
Empilements compacts





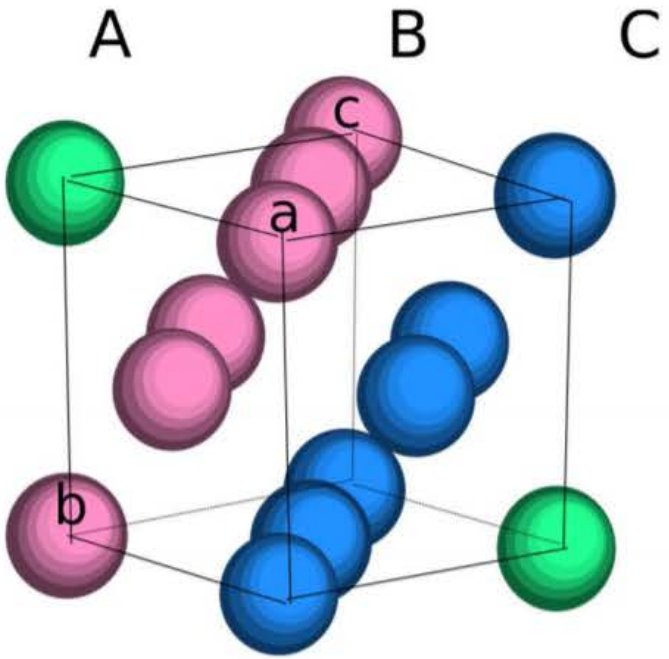


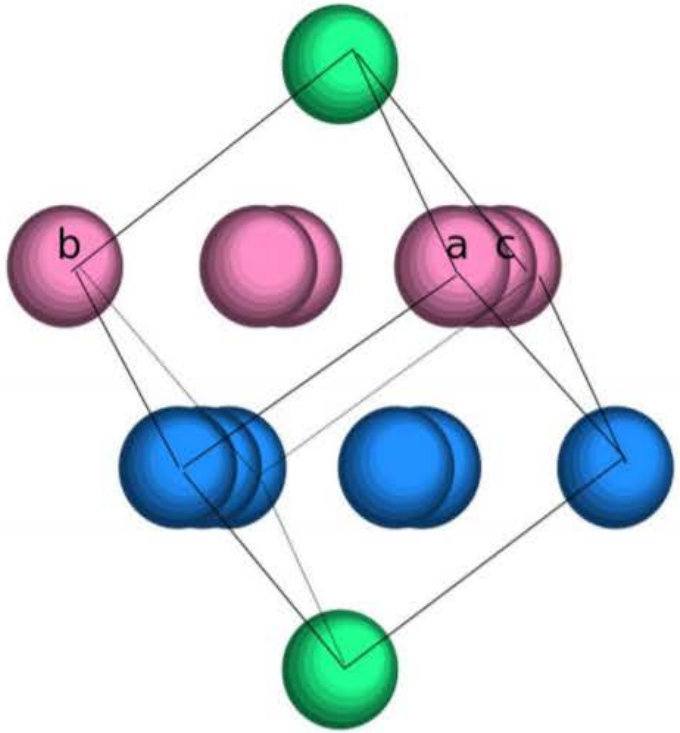
Cubique à faces centrées ABC

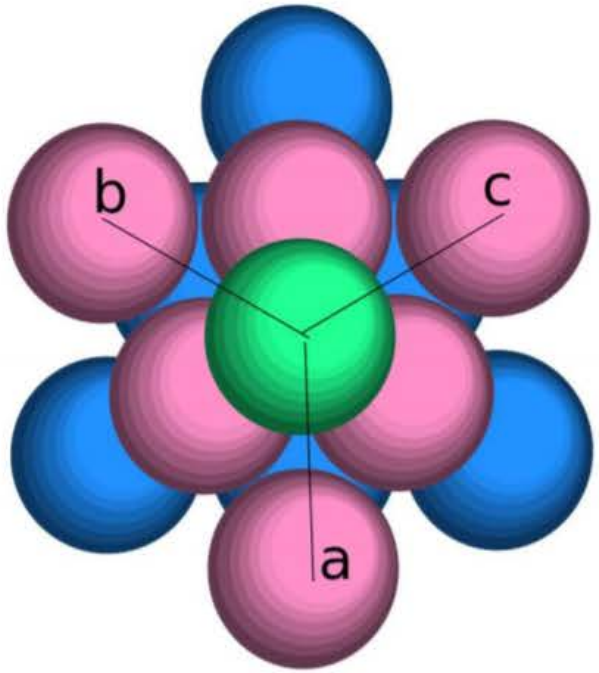


Hexagonal compact ABA

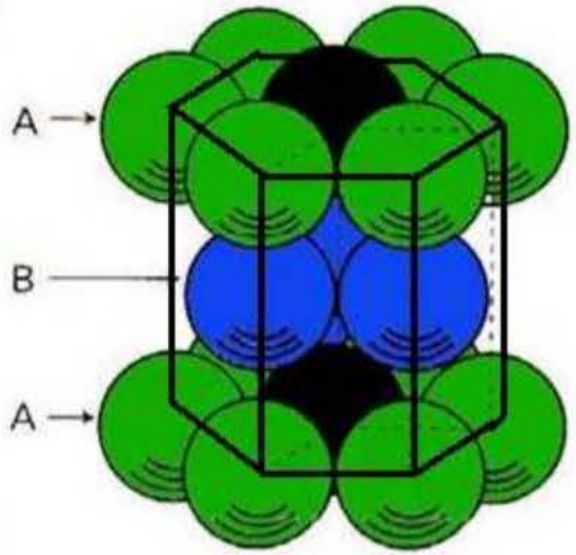
Structure cubique face centrée

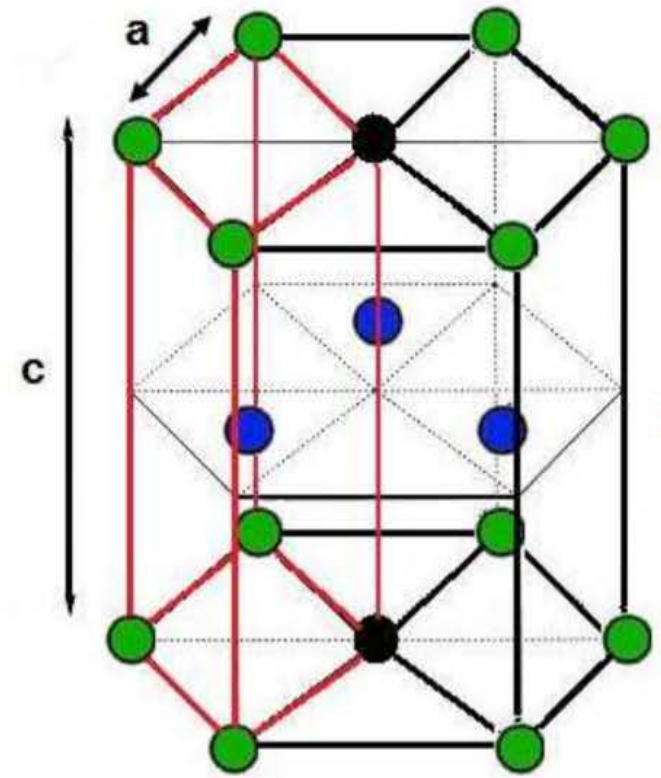


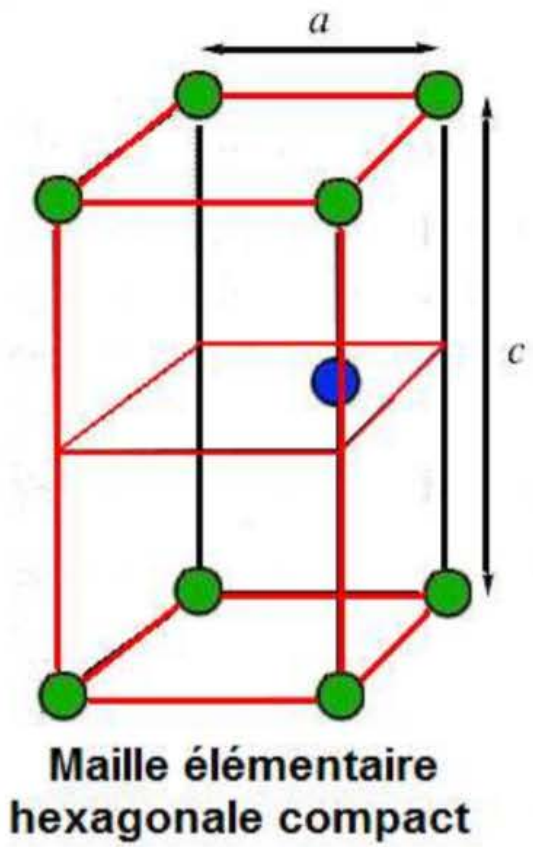




Structure hexagonal compacte

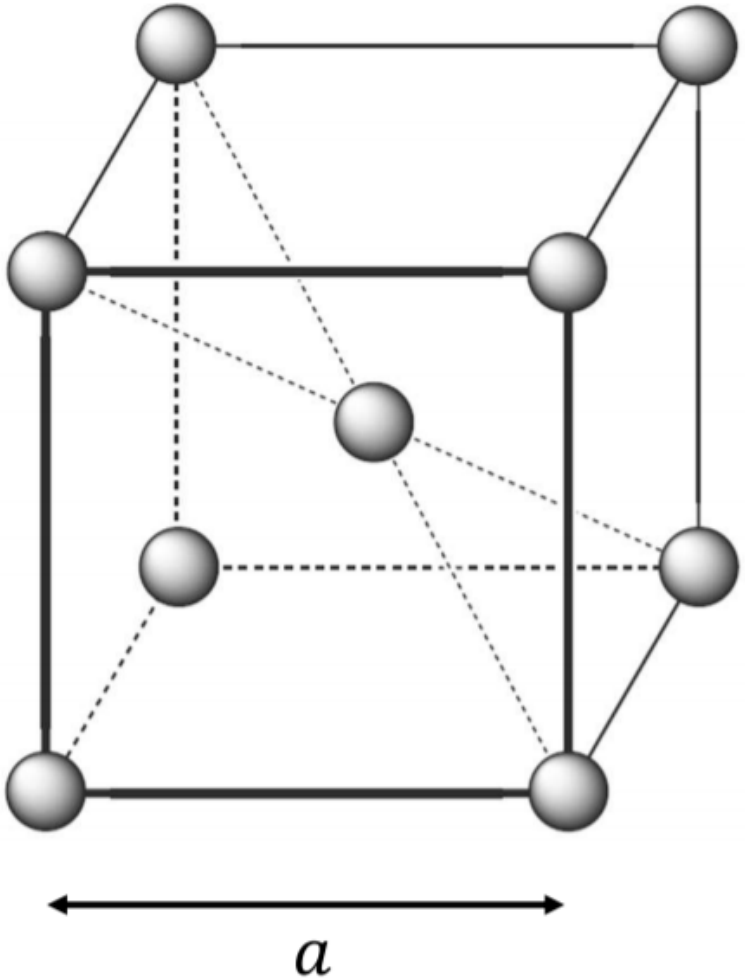




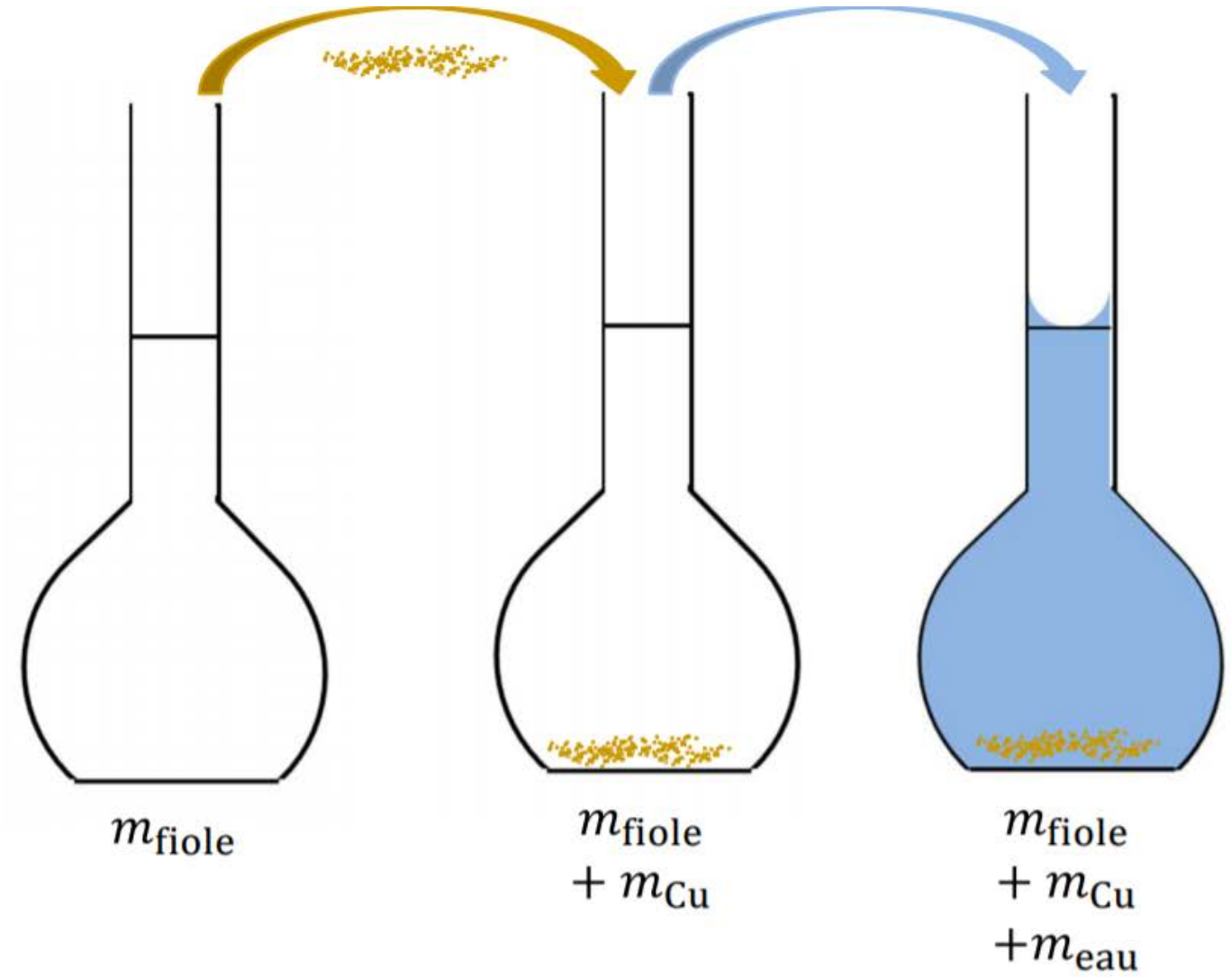


Maille élémentaire hexagonale compact

Exemple d’empilement non compact : la structure cubique centrée



Mesure du paramètre de maille du cuivre

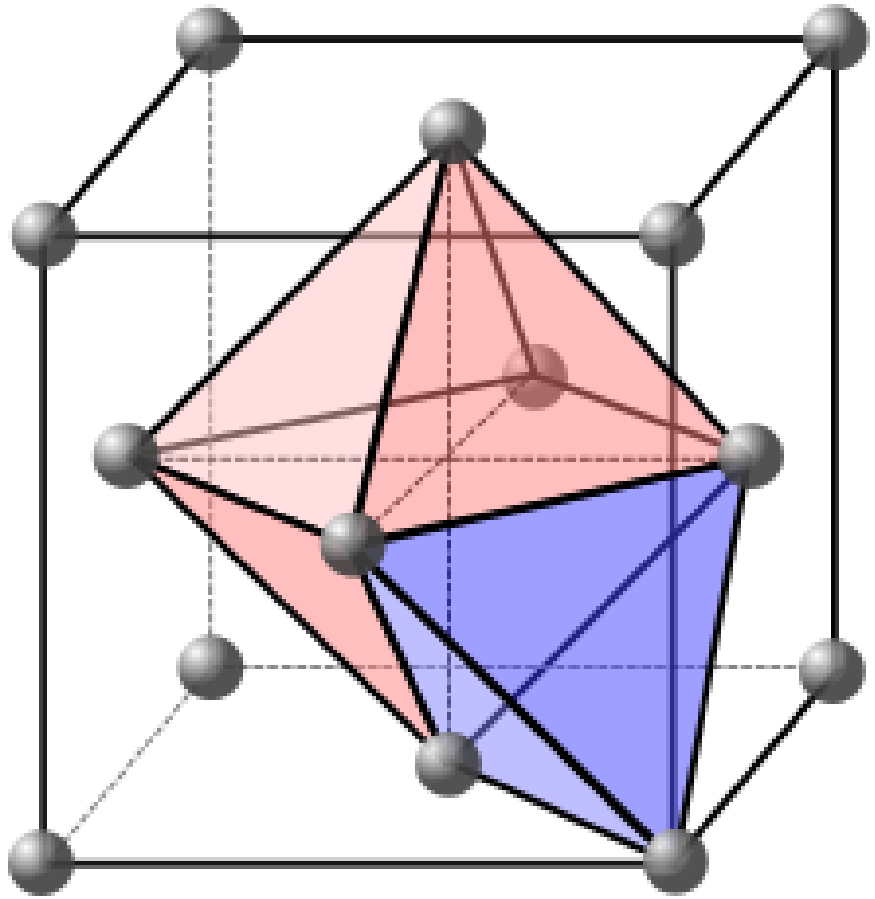


$$V_{\text{Cu}} = V_{\text{fiole}} - \frac{m_{\text{eau}}}{\rho_{\text{eau}}}$$

$$\boxed{\rho_{\text{Cu}} = \frac{m_{\text{Cu}}}{V_{\text{Cu}}}}$$

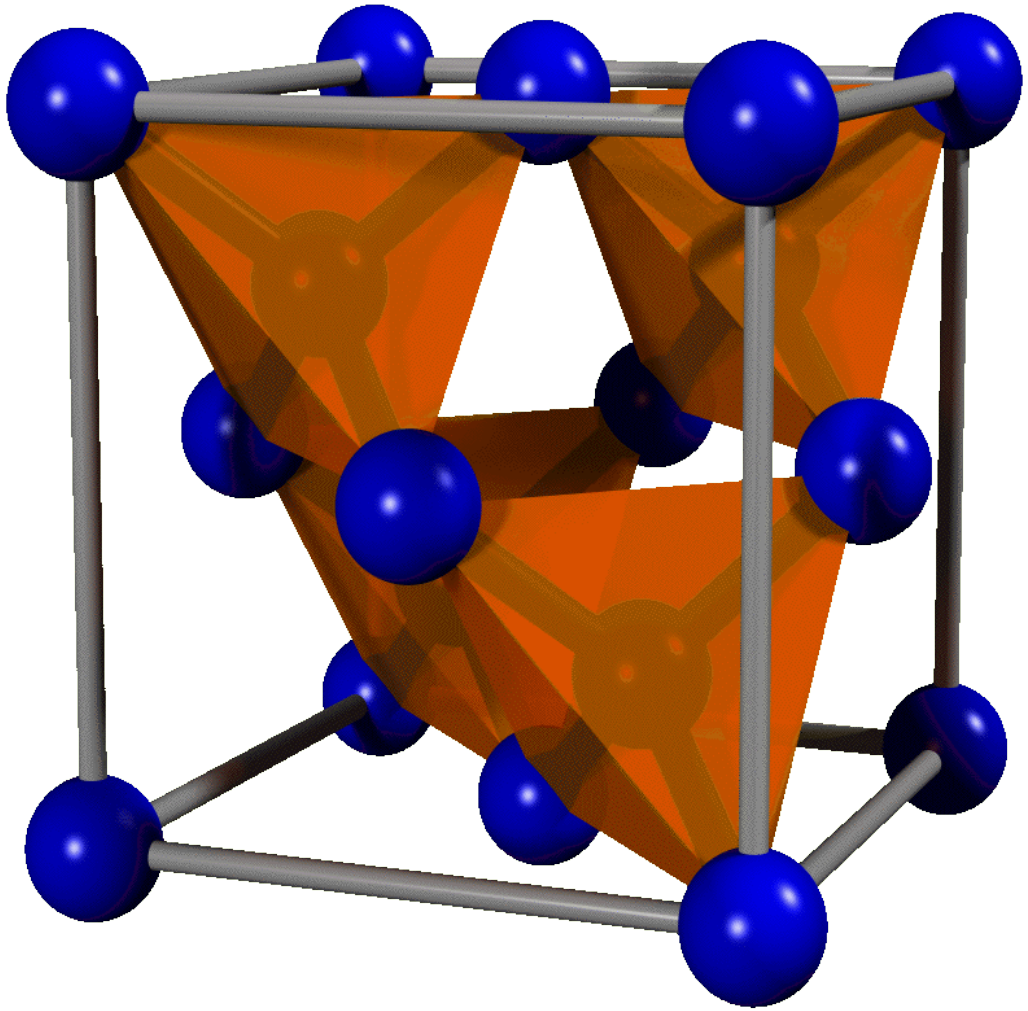
Sites tétraédriques et octaédriques

Site octaédrique

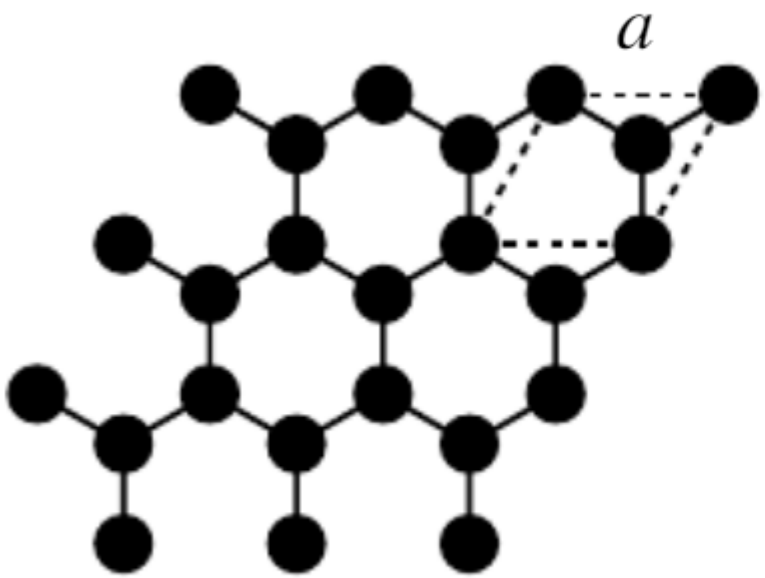


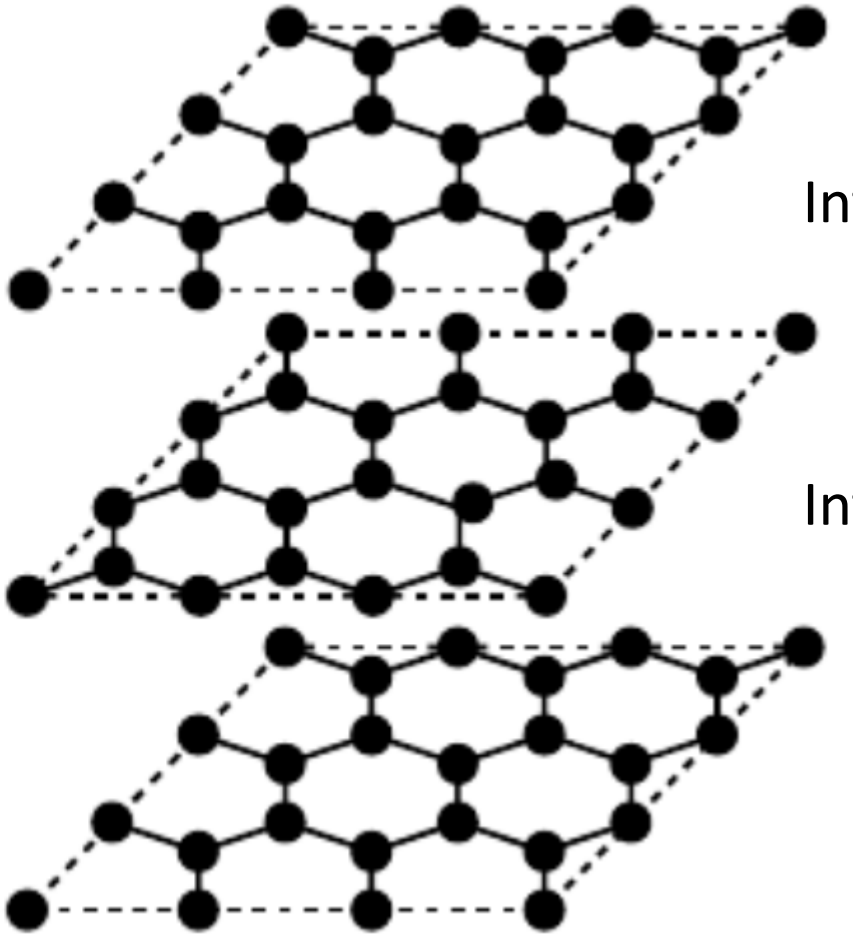
Site tétraédrique

Le carbone diamant : un cristal covalent



La carbone graphite

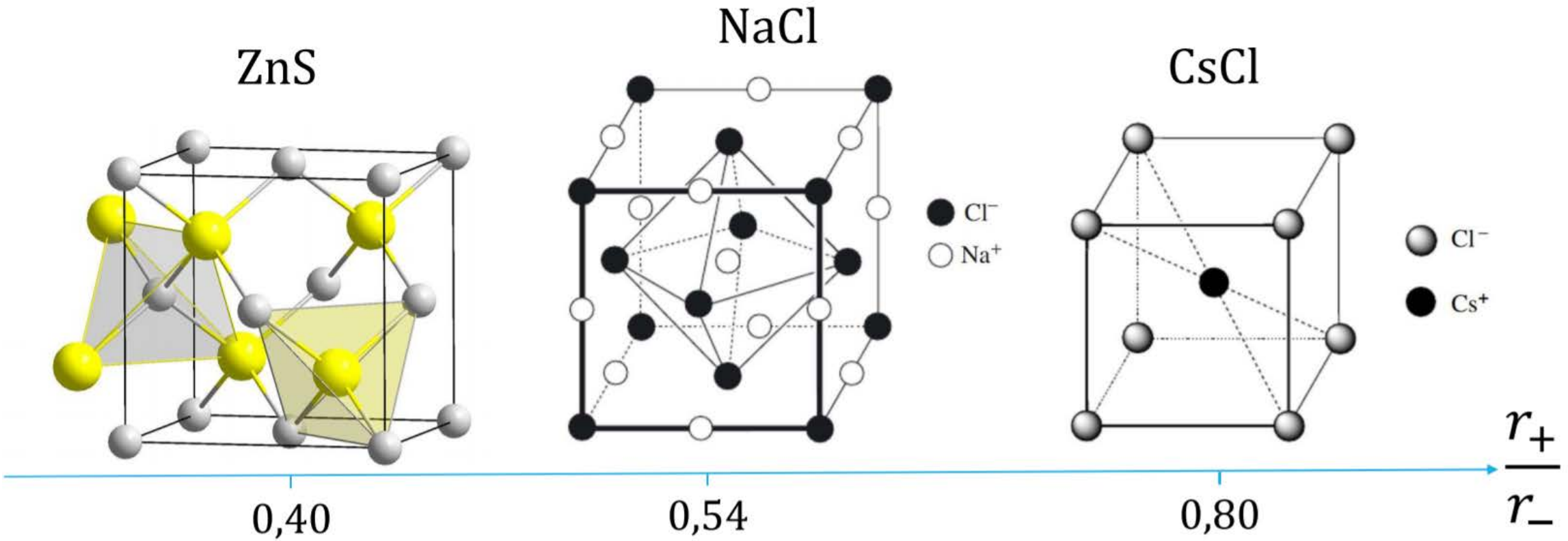




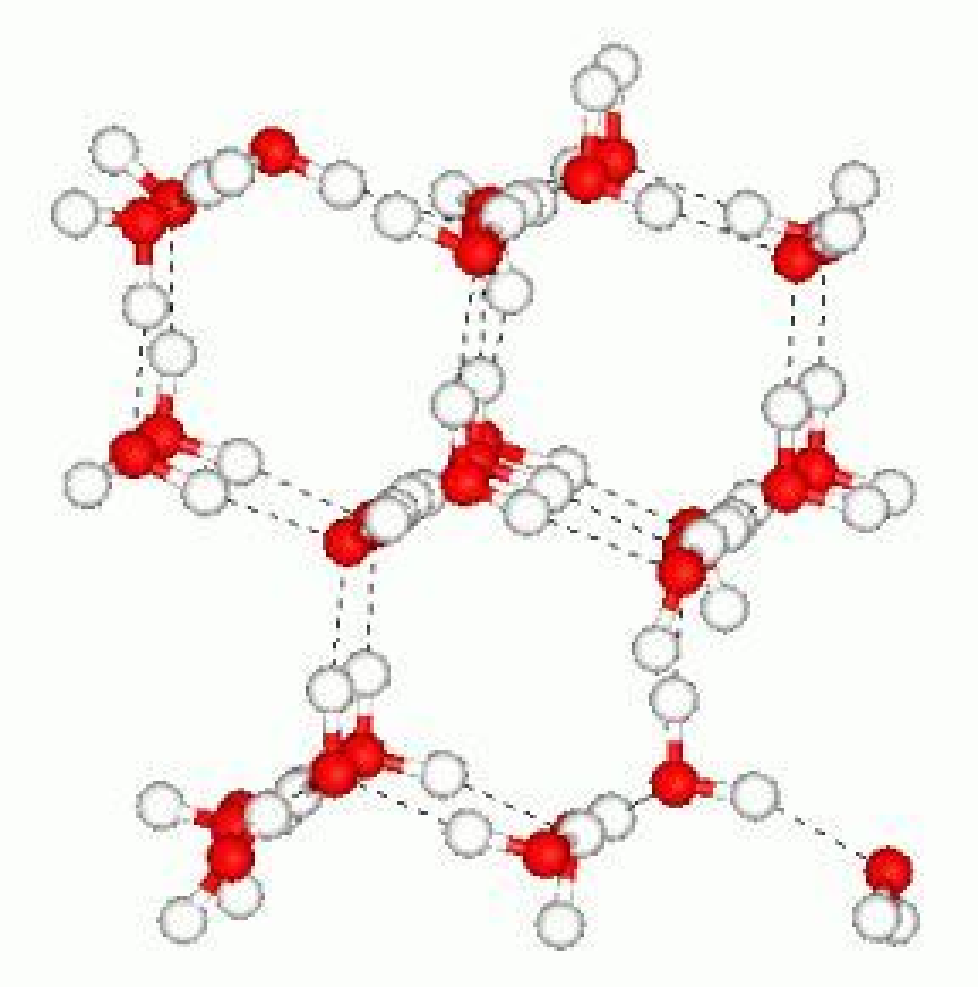
Interaction VdW

Interaction VdW

Evolution de la structure avec le rapport des rayons des ions



Un cristal moléculaire : la glace I



Liaisons hydrogène