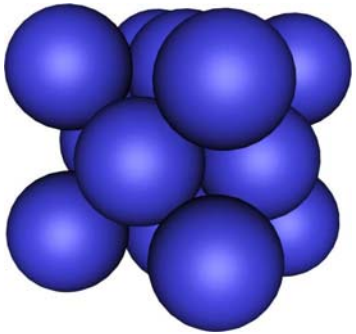
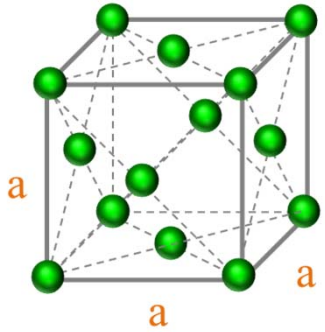
第八讲　金属的典型晶体结构

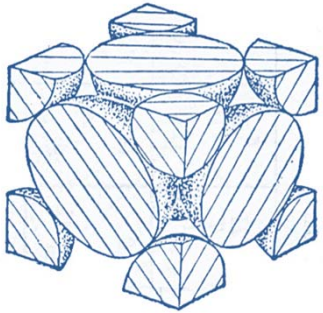
面心立方
体心立方
} 既是晶体结构，又是点阵

密排六方 —— 仅是晶体结构，不是点阵　　— 简单六方

面心立方（fcc 或 A1）







点 阵 常 数：$R = \frac{\sqrt{2}}{4}a$

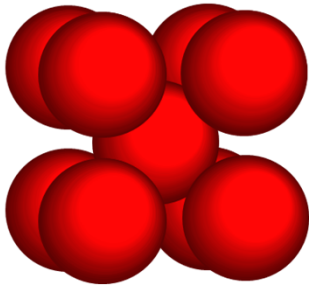
配位数：12

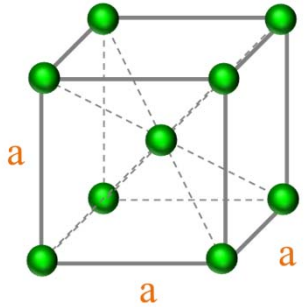
最近原子间距：$d = \frac{\sqrt{2}}{2}a$ <110> 方向

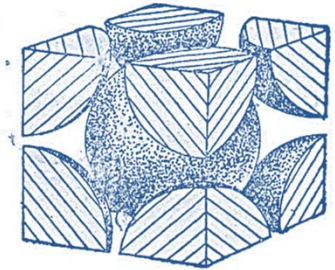
晶胞原子数：1/8×8 ＋ 1/2 ×6 ＝ 4

致密度：$k = \frac{4 \times \frac{1}{6}\pi d^3}{a^3} = 74\%$

体心立方（bcc 或 A2）







点阵常数：$R=\frac{\sqrt{3}}{4}a$

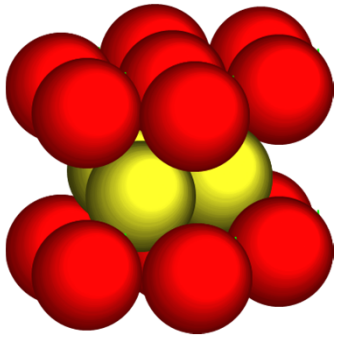
配位数：8

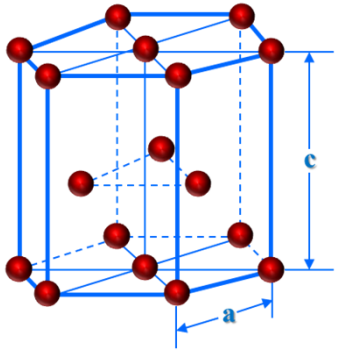
最近原子间距：$d=\frac{\sqrt{3}}{2}a$ <111> 方向

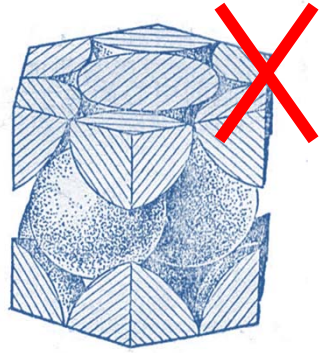
致密度：$k=\frac{2\times\frac{1}{6}\pi d^3}{a^3}=68\%$

晶胞原子数：1/8×8 ＋ 1 ＝2

密排六方（hcp 或 A3）







点阵常数：$R = \frac{1}{2}a$

配位数：6+6

最近原子间距：$d = a$ $<11\bar{2}0>$ 方向

致密度：$k = \frac{6 \times \frac{1}{6}\pi d^3}{6 \times \left(\frac{1}{2} \times a \times \frac{\sqrt{3}}{2}a\right) \times c} = 74\%$

晶胞原子数：$1/6 \times 12 + 1/2 \times 2 + 3 = 6$