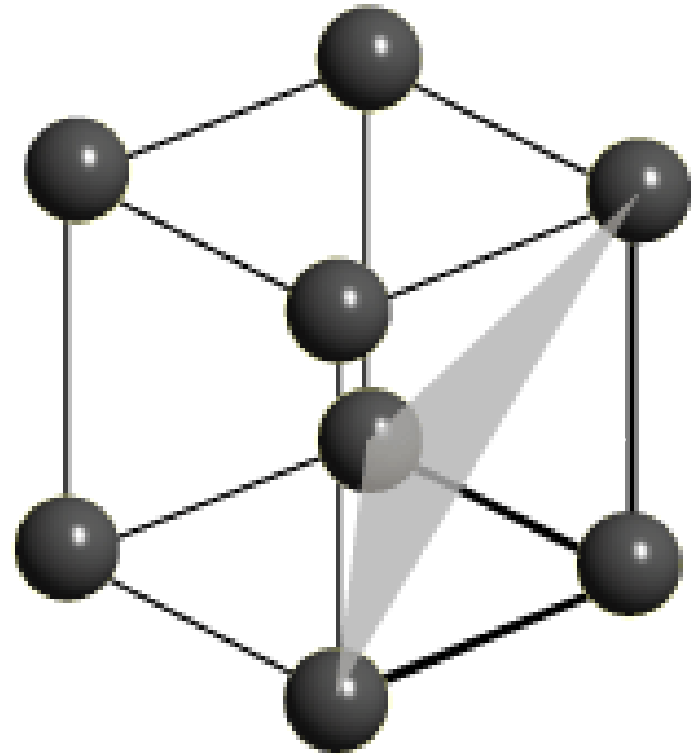
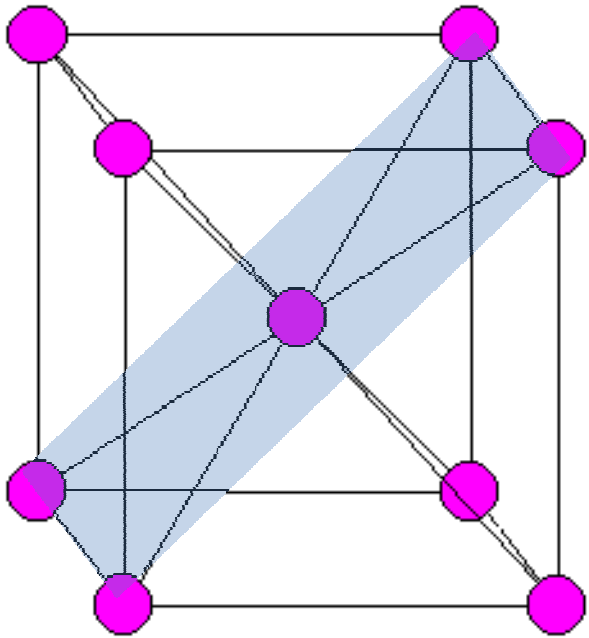
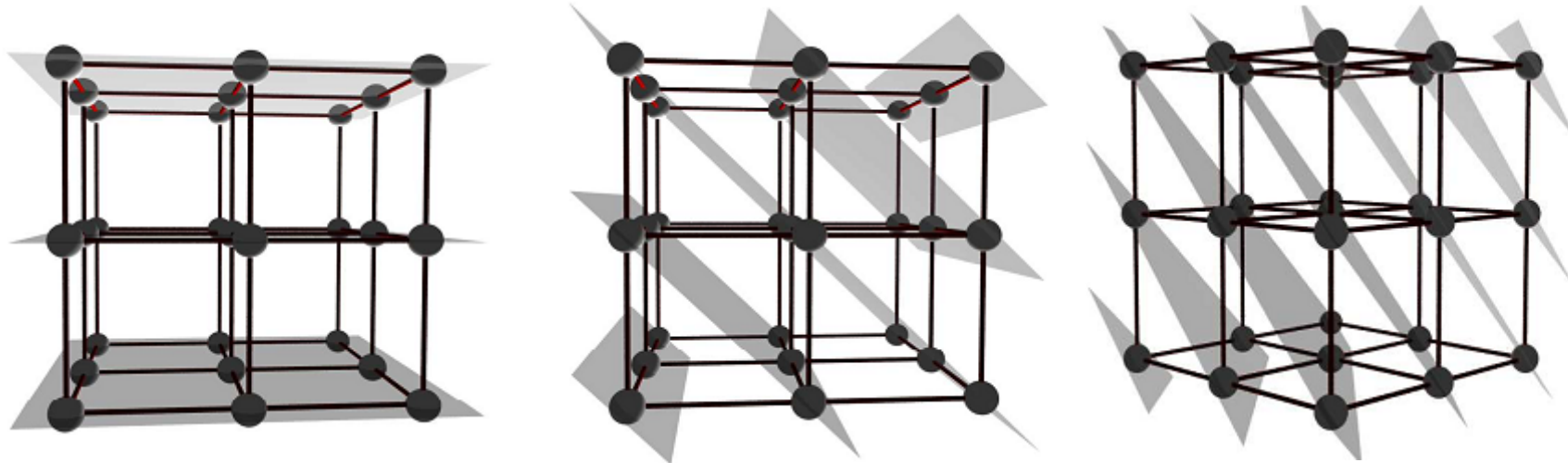


Slides
Condensed Matter Physics
Lecture 11

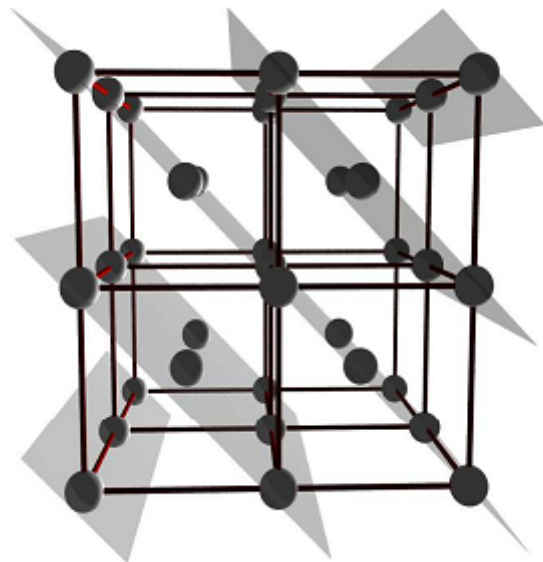
Some Lattice Planes



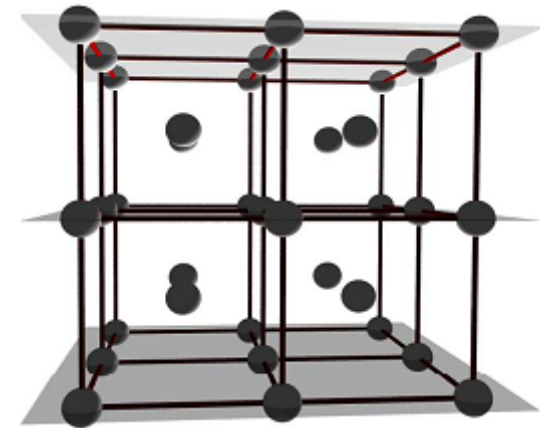
Some Families of Lattice Planes for Simple Cubic Lattice



Family of Lattice Planes for
BCC Lattice

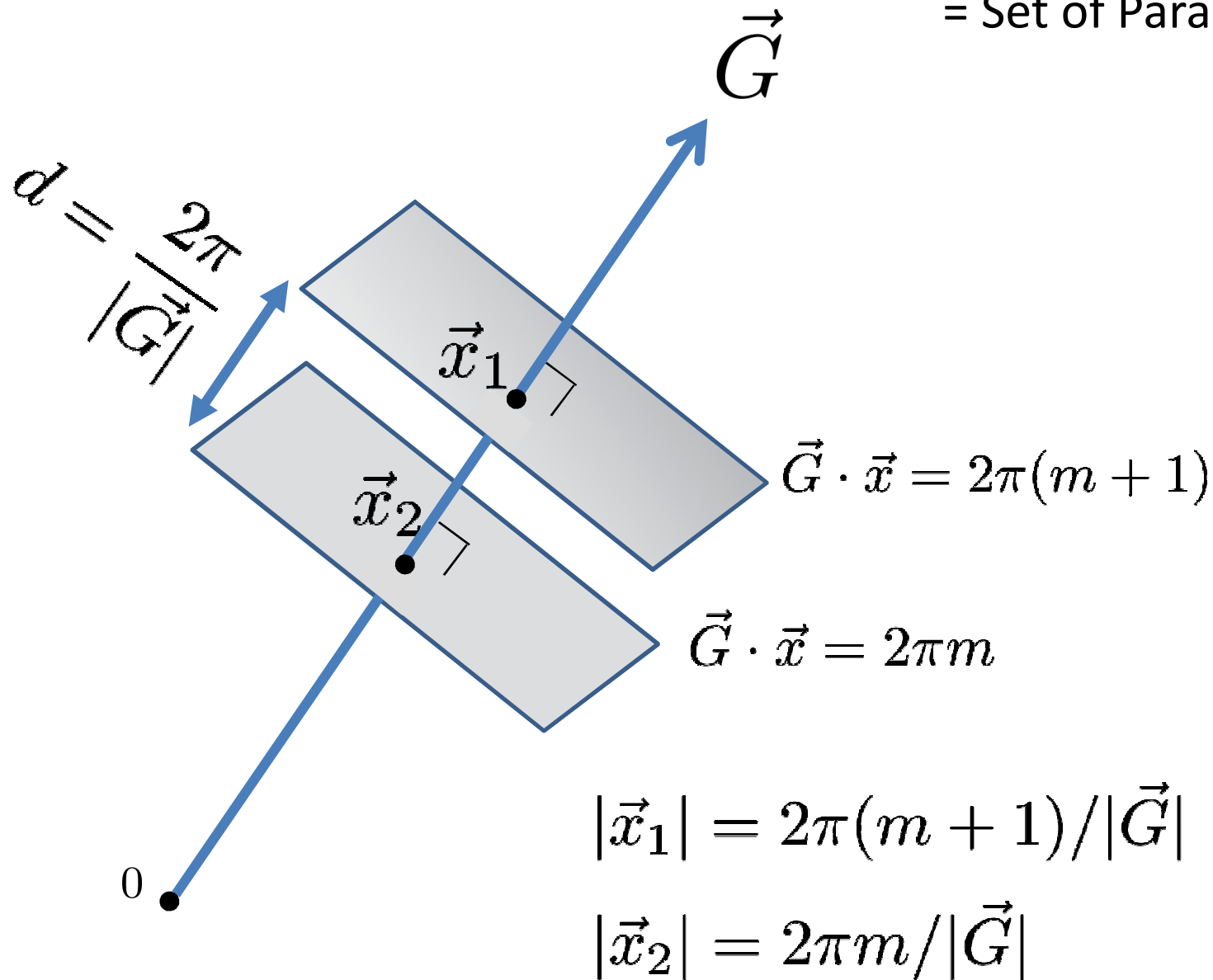


NOT a Family of Lattice
Planes for BCC Lattice

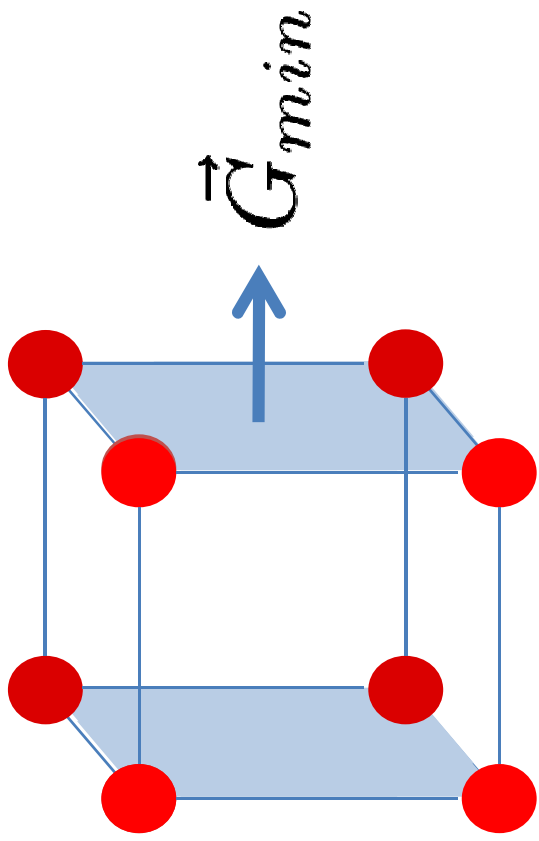


$$\text{Geometry of } e^{i\vec{G}\cdot\vec{x}} = 1$$

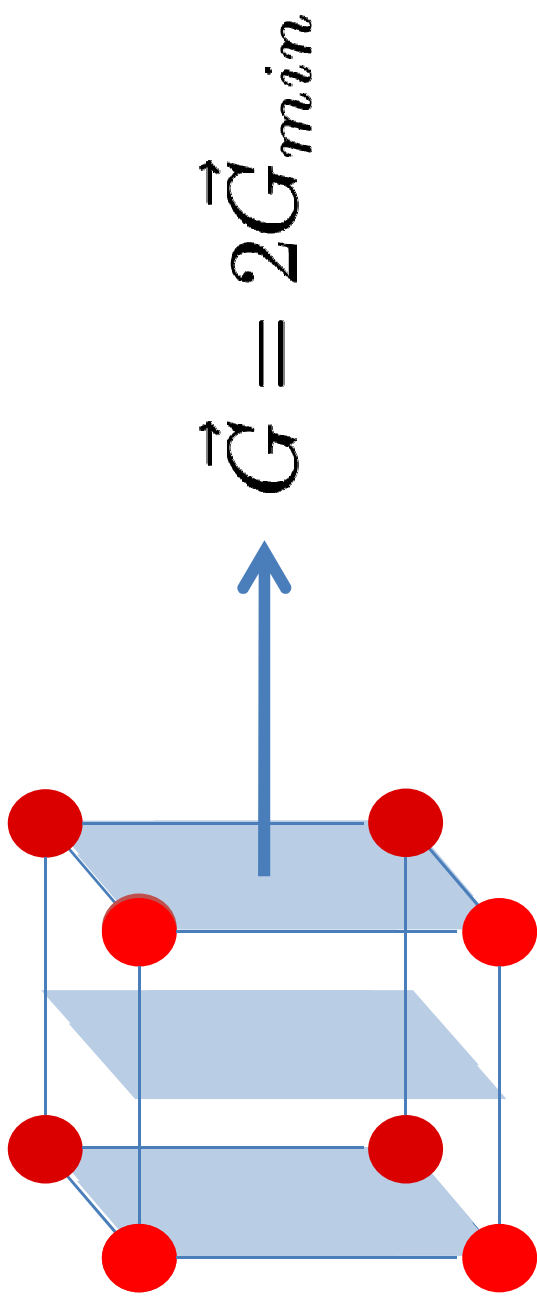
= Set of Parallel Planes

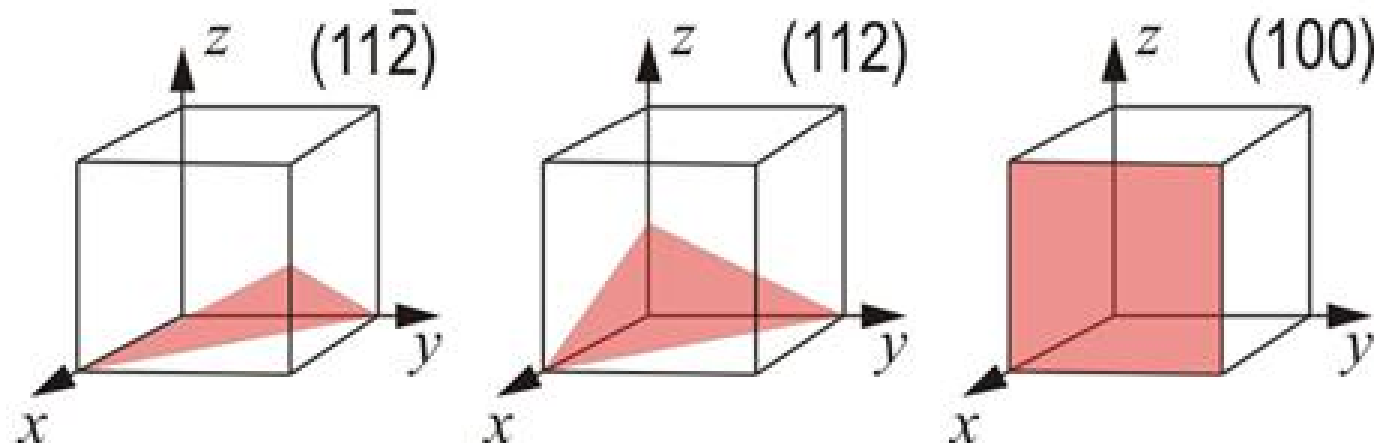


$$d = \frac{2\pi}{|\vec{G}_{min}|}$$

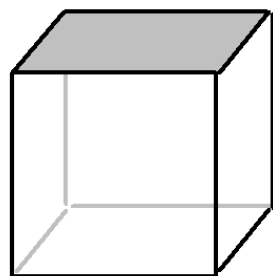


$$d = \frac{2\pi}{2|\vec{G}_{min}|}$$

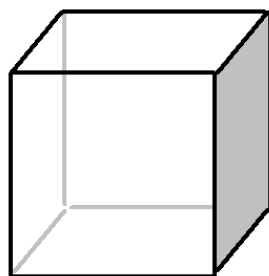




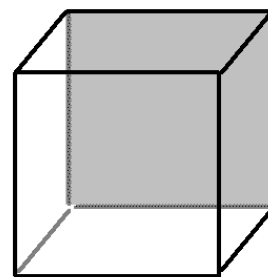
Some Examples of
Miller Indices



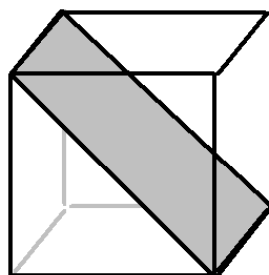
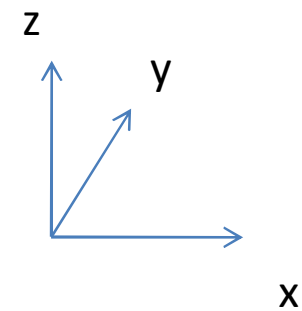
(001)



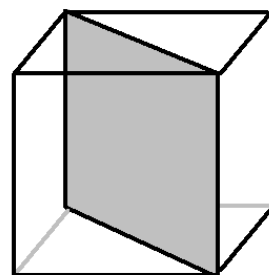
(100)



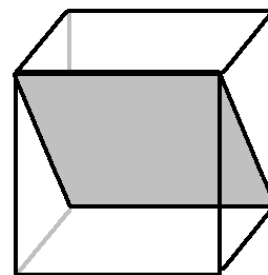
(010)



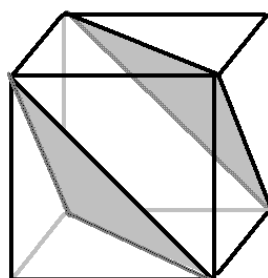
(101)



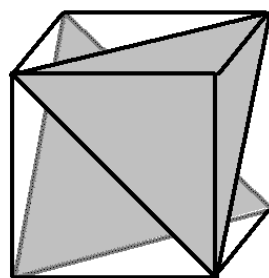
(110)



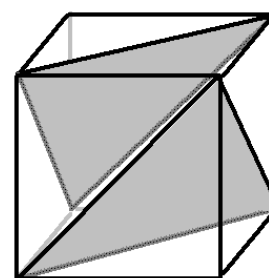
(011)



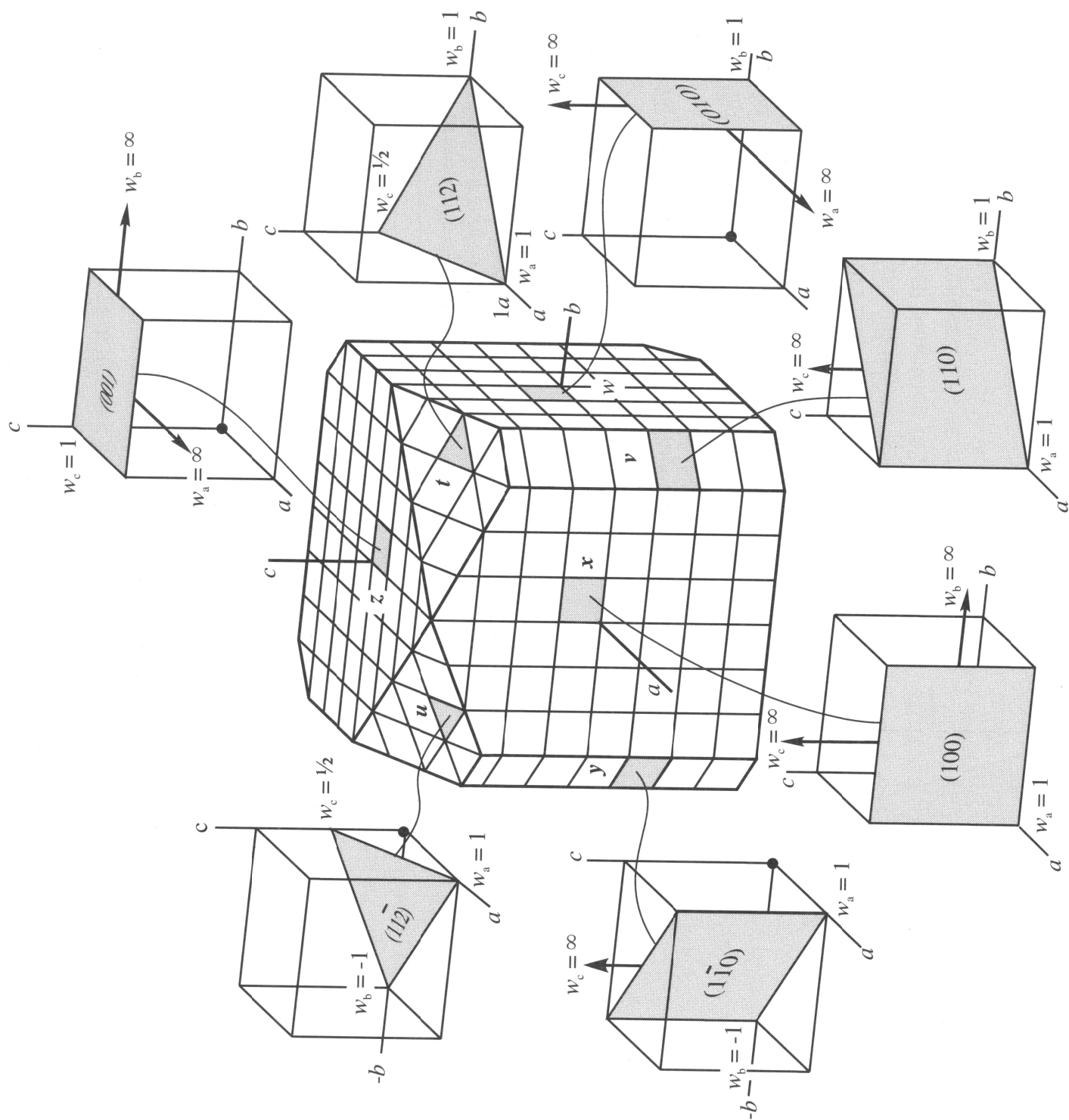
(111)



$(1\bar{1}1)$

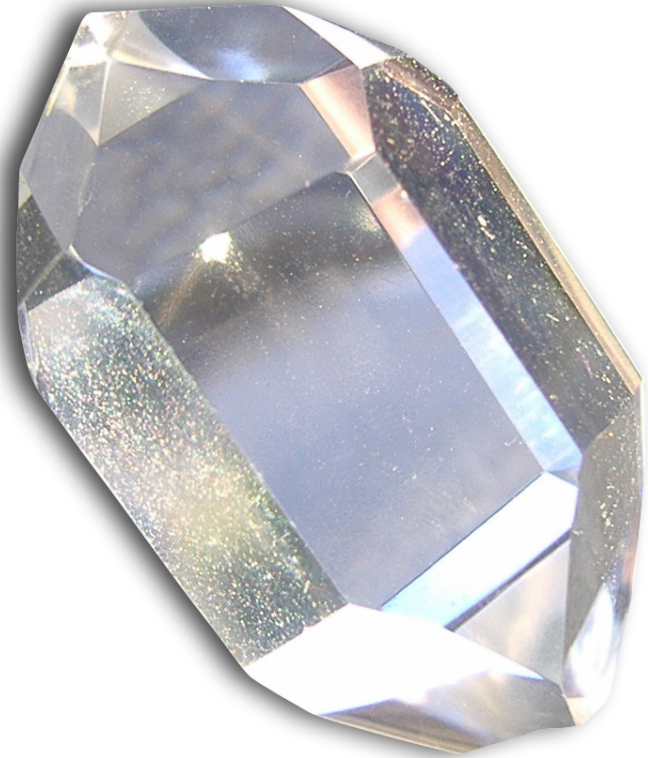


$(\bar{1}11)$



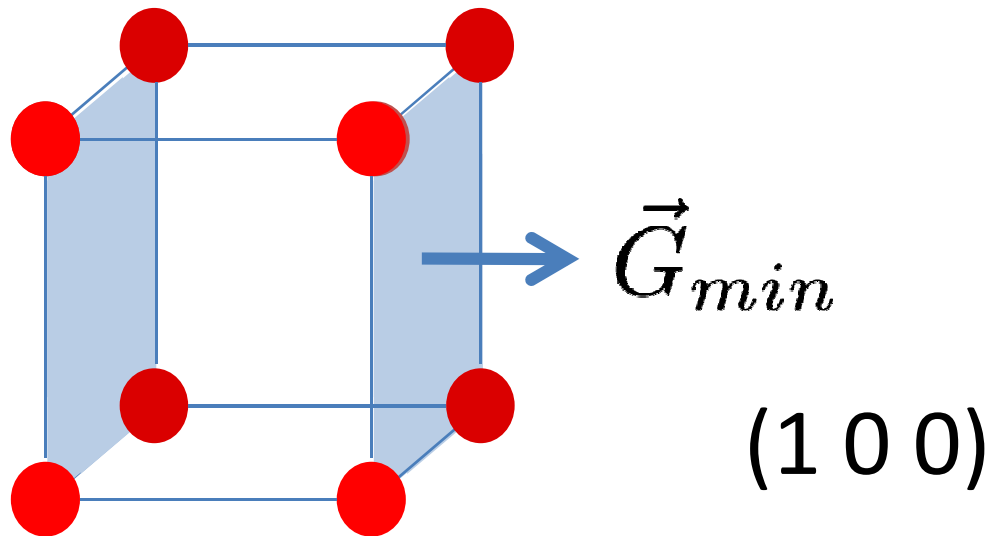


NaCl (FCC with basis)

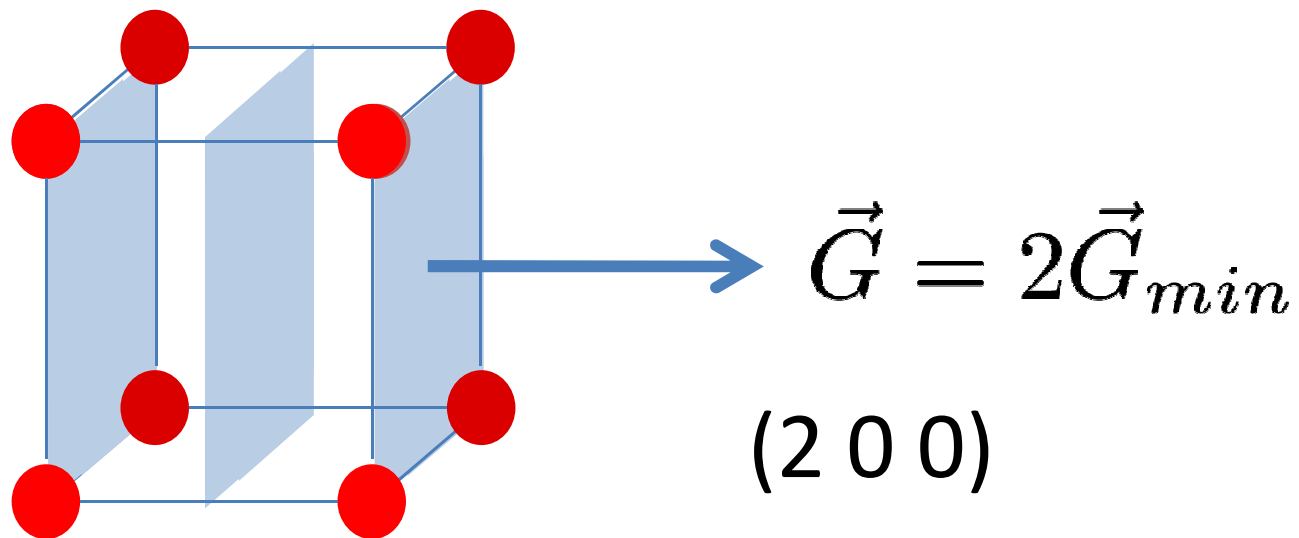


Quartz (Trigonal SiO₂)

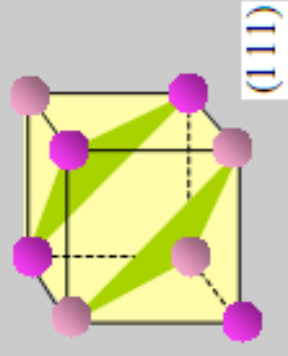
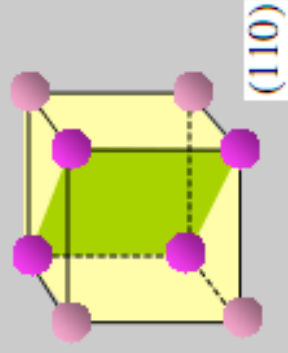
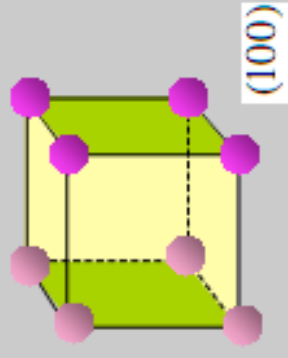
$$d = \frac{2\pi}{|\vec{G}_{min}|}$$



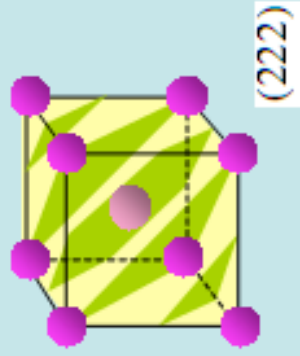
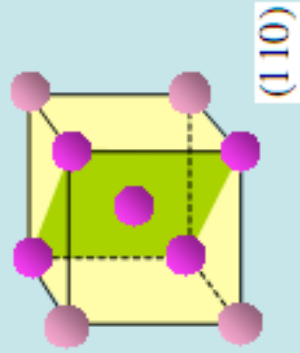
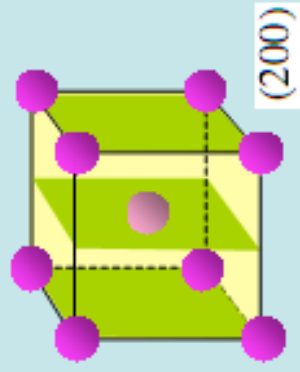
$$d = \frac{2\pi}{2|\vec{G}_{min}|}$$



sc



bcc



fcc

