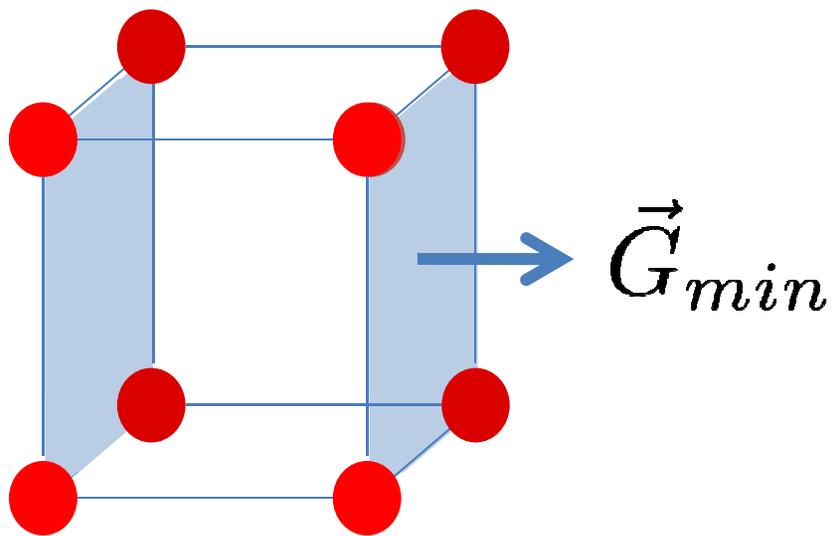# Slides
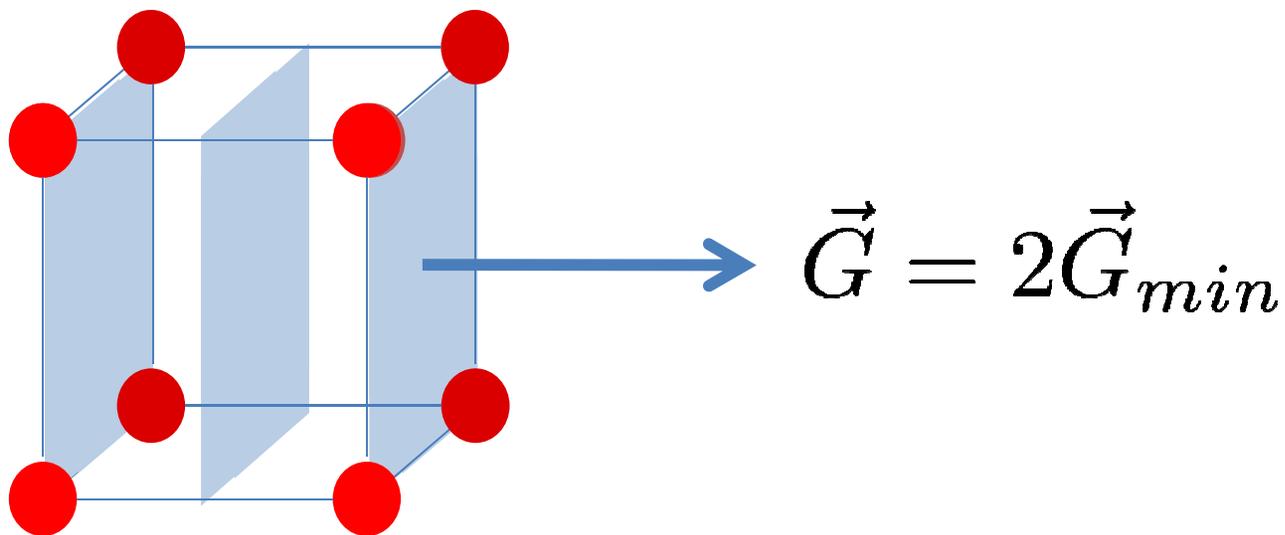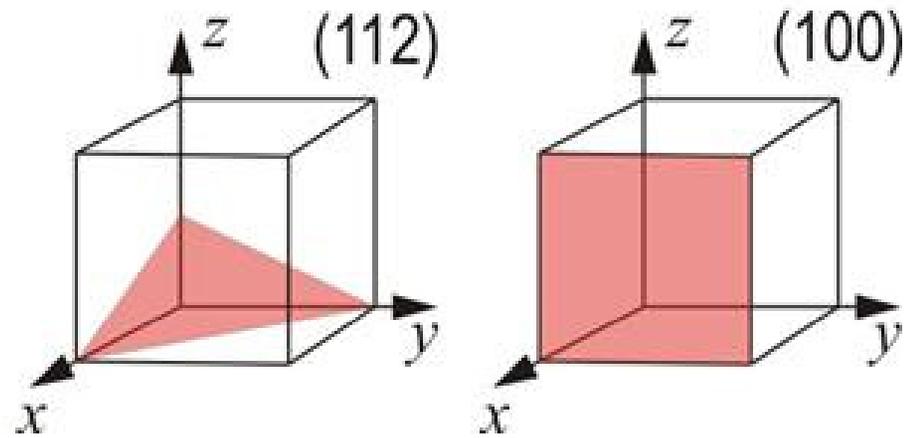# Condensed Matter Physics
Lecture 12

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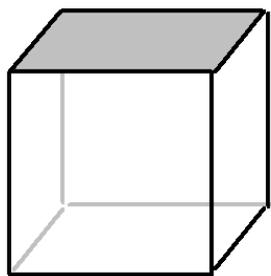

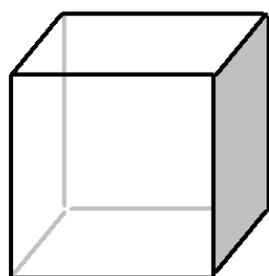$$\vec{G}_{min}$$

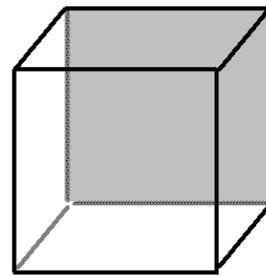$$d = \frac{2\pi}{2|\vec{G}_{min}|}$$

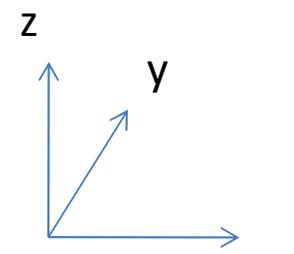$$\vec{G} = 2\vec{G}_{min}$$

Some Examples of
Miller Indices

(001)   (100)   (010)

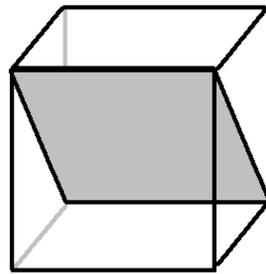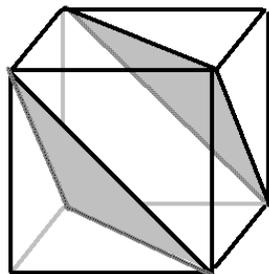(101)   (110)   (011)

(111) $(1\bar{1}1)$ $(\bar{1}11)$

$w_c = 1$

(001)

$w_b = \infty$

$w_a = \infty$

c

b

a

c

$w_c = \frac{1}{2}$

$w_b = -1$

$(11\bar{2})$

$-b$

$w_a = 1$

a

c

z

u

t

b

c

$w_c = \frac{1}{2}$

(112)

$w_b = 1$

b

$1a$

$w_a = 1$

a

$w_c = \infty$

c

$(1\bar{1}0)$

$-b$ — $w_b = -1$

$w_a = 1$

a

y

x

a

v

w

b

c

$w_c = \infty$

(010)

$w_b = 1$

b

a

$w_a = \infty$

$w_c = \infty$

c

(100)

$w_b = \infty$
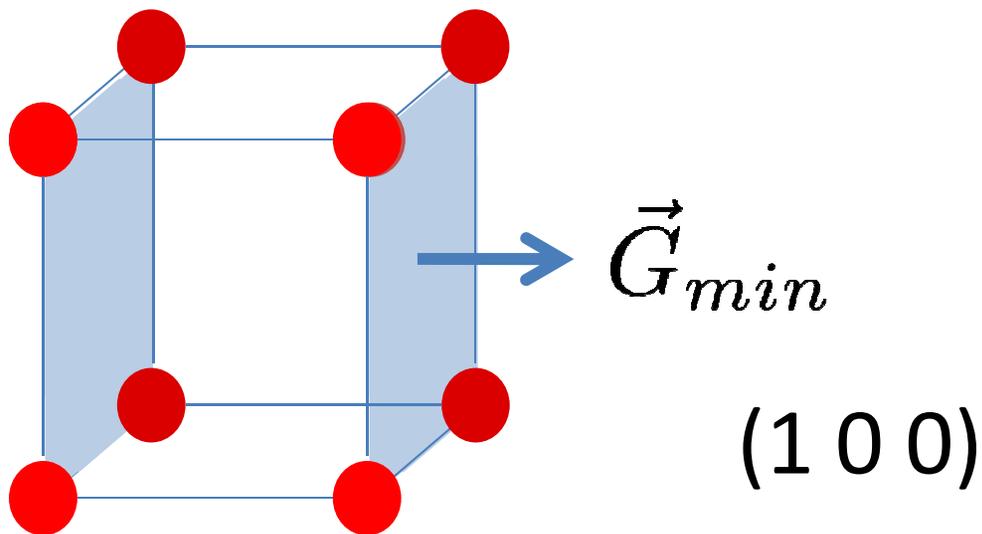
b

$w_a = 1$

a

c

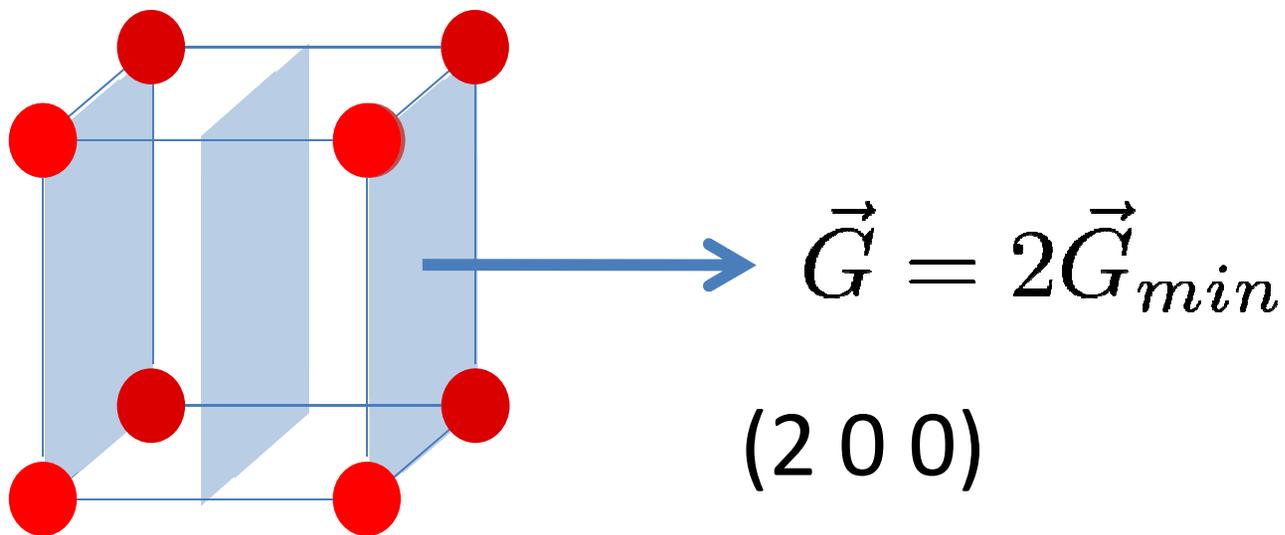$w_c = \infty$

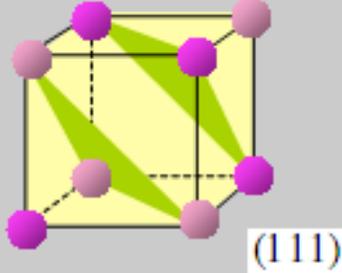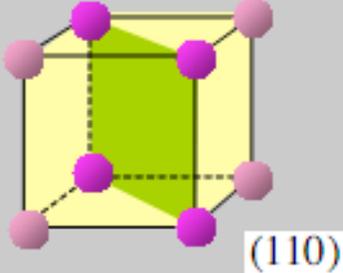(110)

$w_b = 1$

b

$w_a = 1$

a
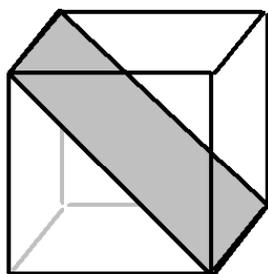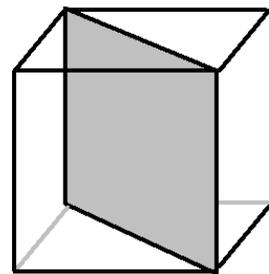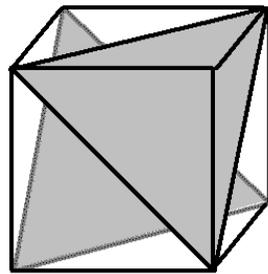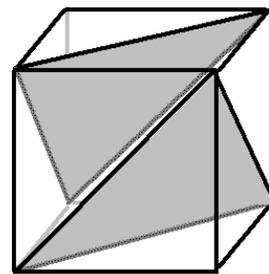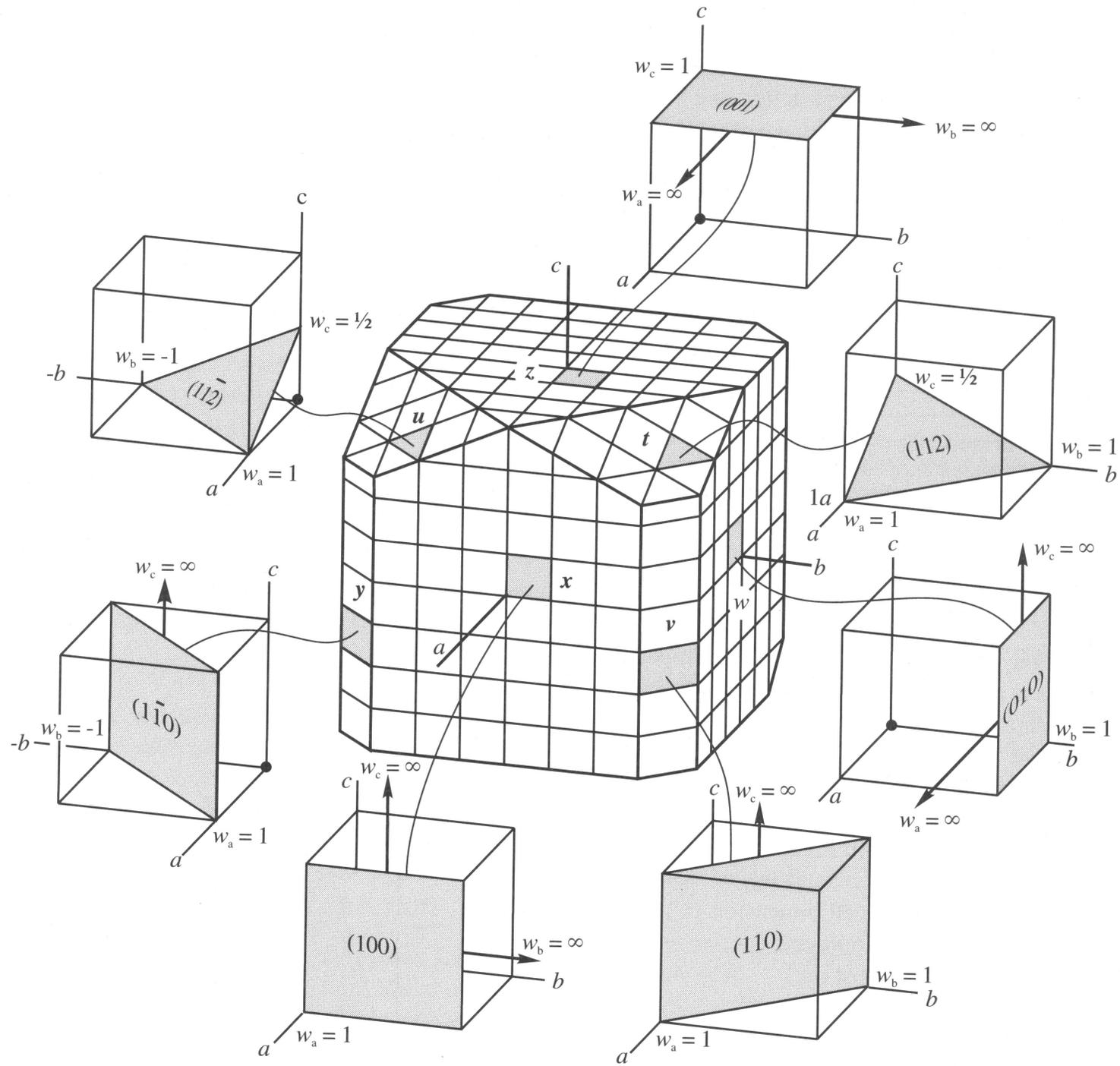
NaCl (FCC with basis)
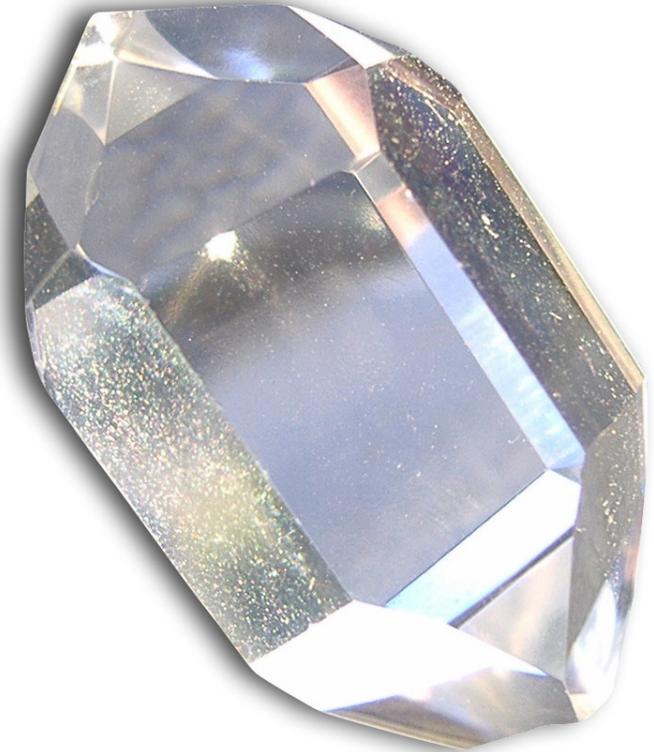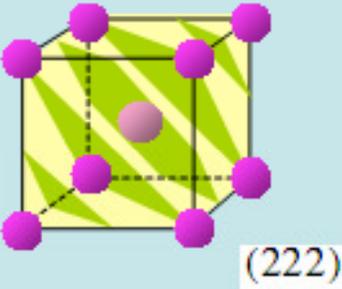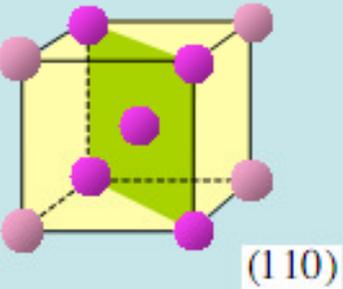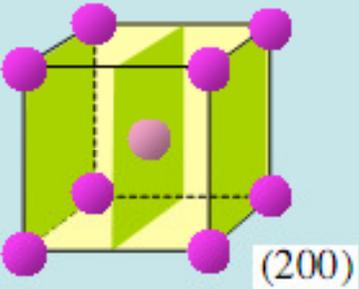
Quartz (Trigonal SiO_2)

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

$\vec{G}_{min}$

(1 0 0)

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

$\vec{G} = 2\vec{G}_{min}$

(2 0 0)

sc	(100)	(110)	(111)
bcc	(200)	(110)	(222)
fcc	(200)	(220)	(111)