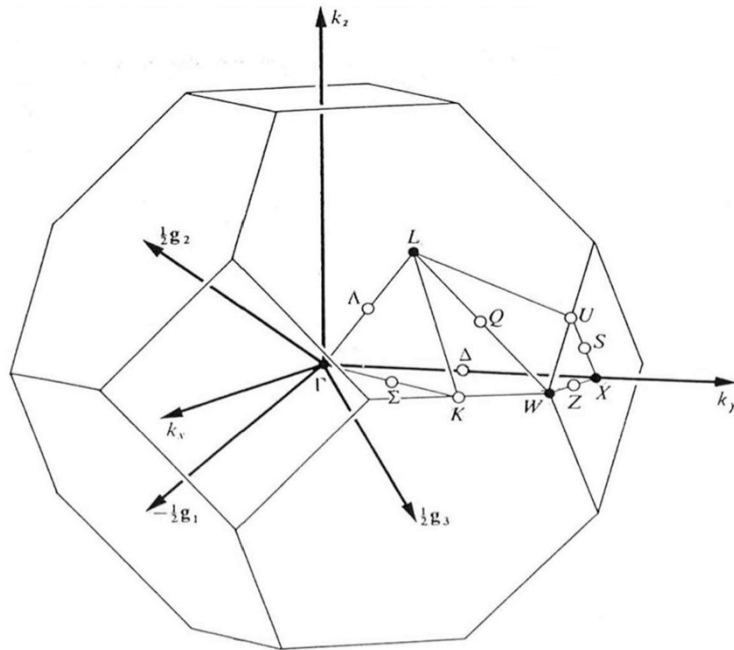
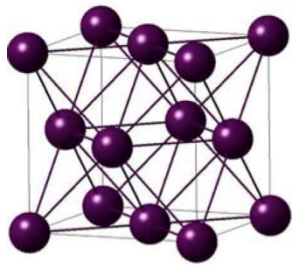


# Brillouinzones

## Contents

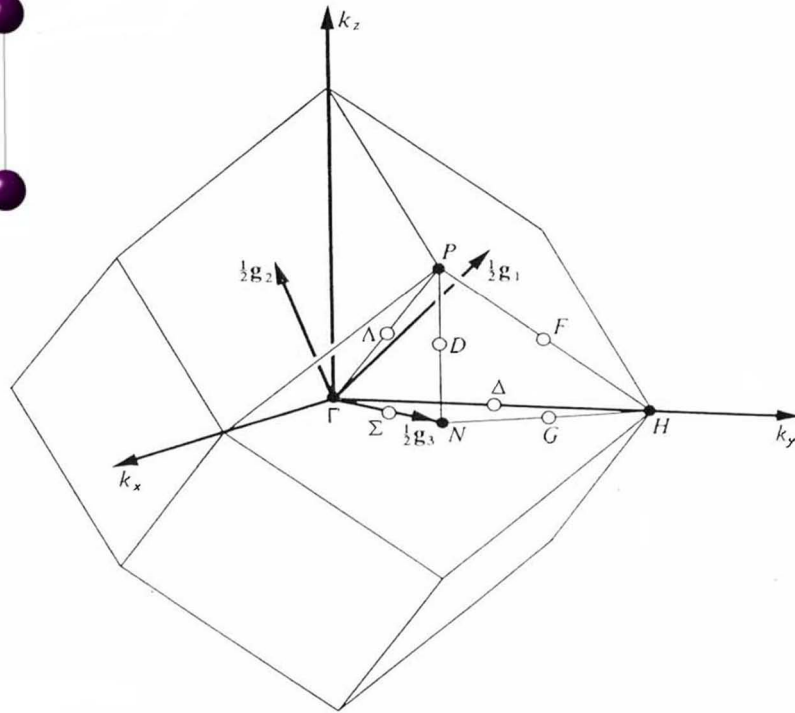
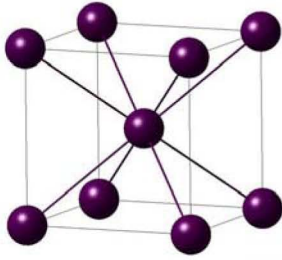
- *Brillouin Zones*
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# 1 Face Centered Cubic



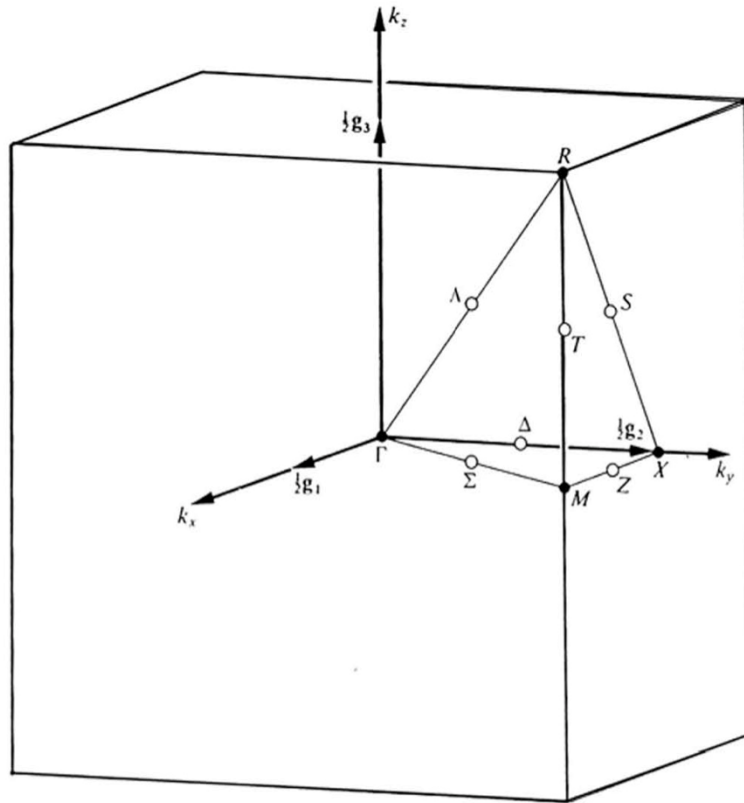
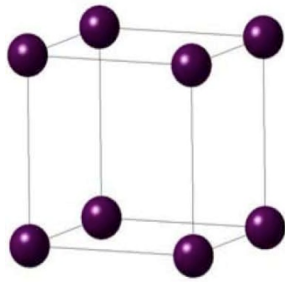
Point	$(g_1 g_2 g_3)$
$\Gamma$	(000)
$L$	$(\frac{1}{2} \frac{1}{2} \frac{1}{2})$
$X$	$(\frac{1}{2} 0 \frac{1}{2})$
$W$	$(\frac{1}{2} \frac{1}{2} \frac{3}{4})$
$K$	$(\frac{3}{8} \frac{3}{8} \frac{3}{8})$

## 2 Body Centered Cubic



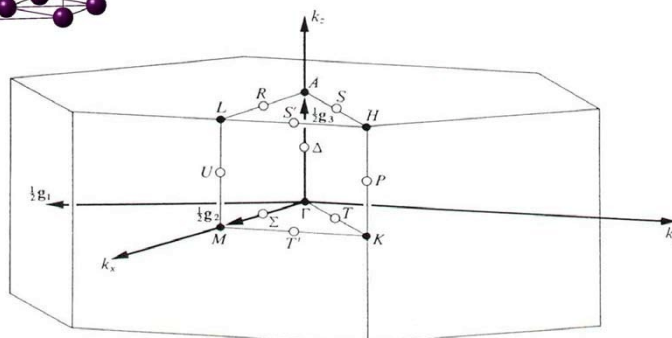
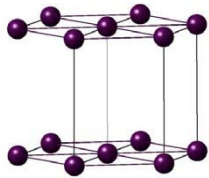
Point	$(g_1 g_2 g_3)$
$\Gamma$	(000)
$H$	$(\frac{1}{2} \frac{1}{2} \frac{1}{2})$
$P$	$(\frac{1}{3} \frac{1}{4} \frac{1}{4})$
$N$	$(00\frac{1}{2})$

### 3 Simple Cubic



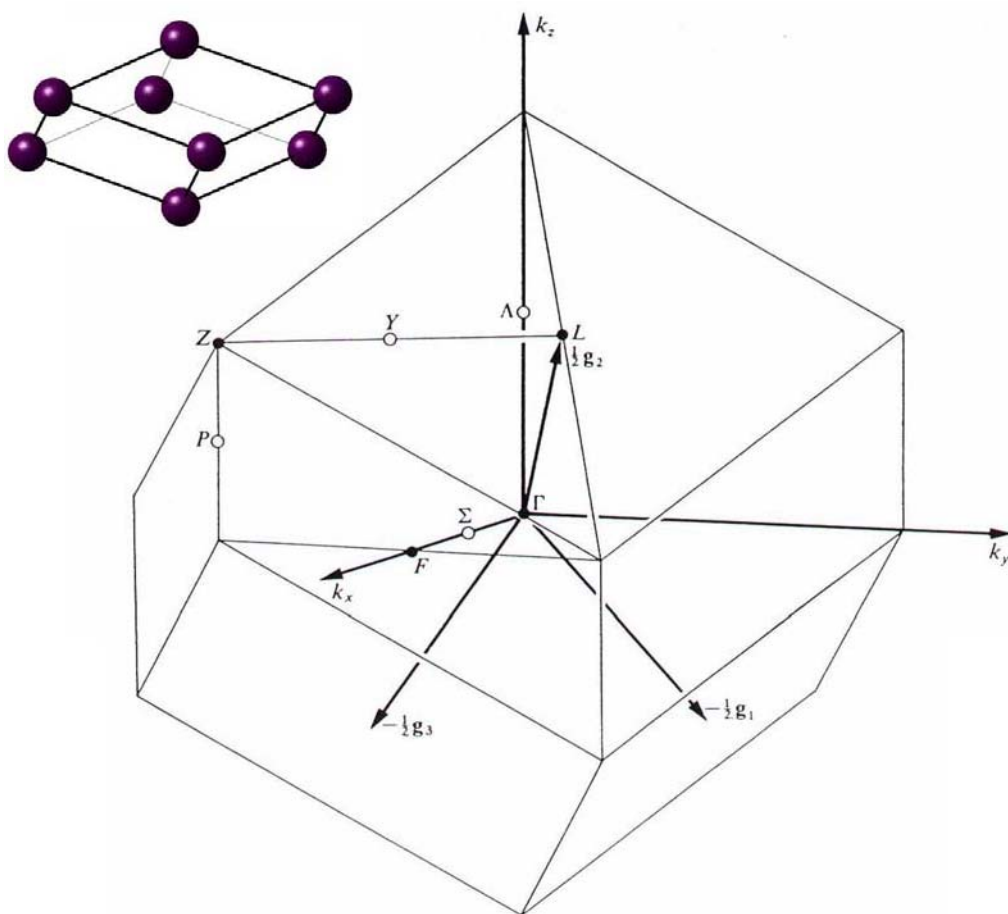
Point	$(g_1 g_2 g_3)$
$\Gamma$	(000)
$X$	$(0 \frac{1}{2} 0)$
$M$	$(\frac{1}{2} \frac{1}{2} 0)$
$R$	$(\frac{1}{2} \frac{1}{2} \frac{1}{2})$

### 4 Hexagonal



Point	$(g_1g_2g_3)$
$\Gamma$	(000)
$A$	$(00\frac{1}{2})$
$M$	$(0\frac{1}{2}0)$
$L$	$(0\frac{1}{2}\frac{1}{2})$
$K$	$(\frac{1}{3}\frac{2}{3}0)$
$H$	$(\frac{1}{3}\frac{2}{3}\frac{1}{2})$

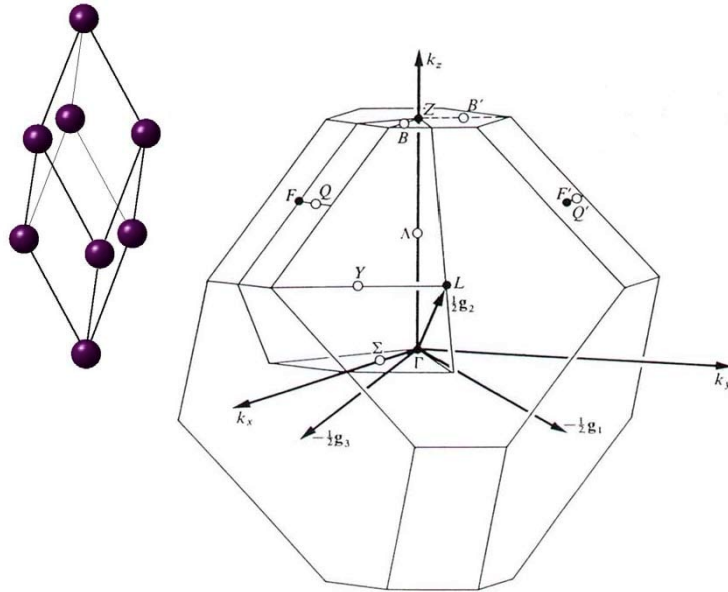
## 5 Rhombohedral for $2c < a^2$



Condition  $\sqrt{2c} < a$

Point	$(g_1g_2g_3)$
$\Gamma$	(000)
$Z$	$(\frac{1}{2}\frac{1}{2}\frac{1}{2})$
$L$	$(0\frac{1}{2}0)$
$F$	$(0\frac{1}{2}\frac{1}{2})$

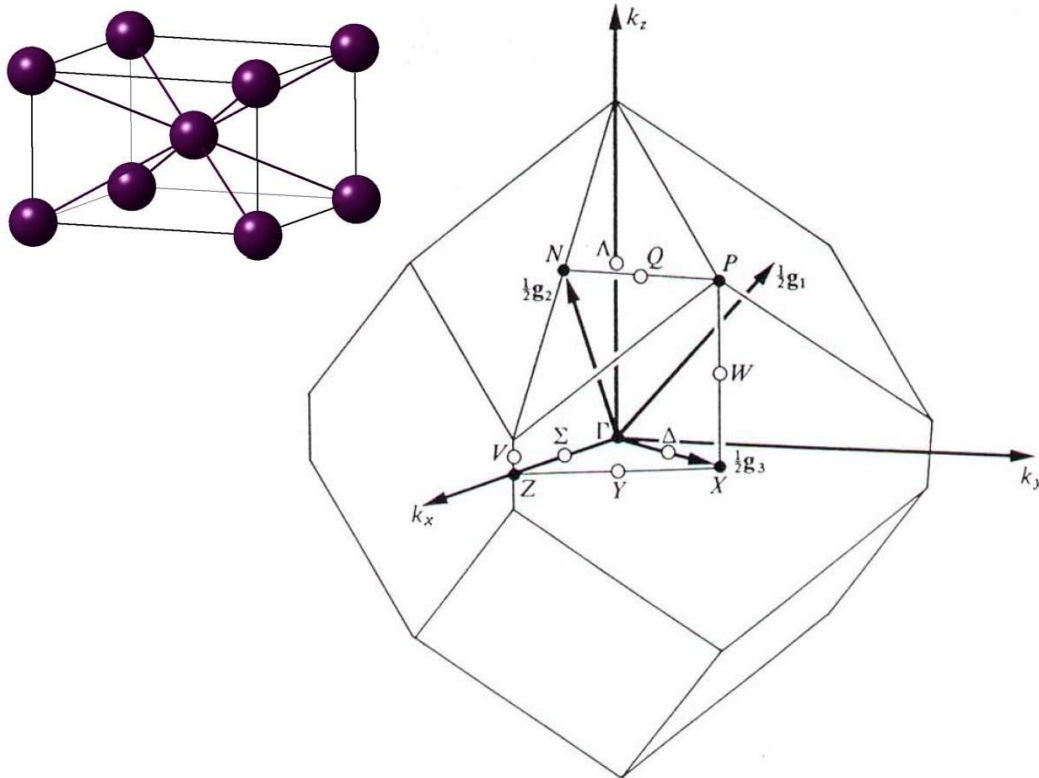
## 6 Rhombohedral for $2c > a^2$



Condition  $\sqrt{2c} > a$

Point	$(g_1 g_2 g_3)$
$\Gamma$	(000)
$Z$	$(\frac{1}{2} \frac{1}{2} \frac{1}{2})$
$L$	$(0 \frac{1}{2} 0)$
$F$	$(\frac{1}{2} \frac{1}{2} 0)$

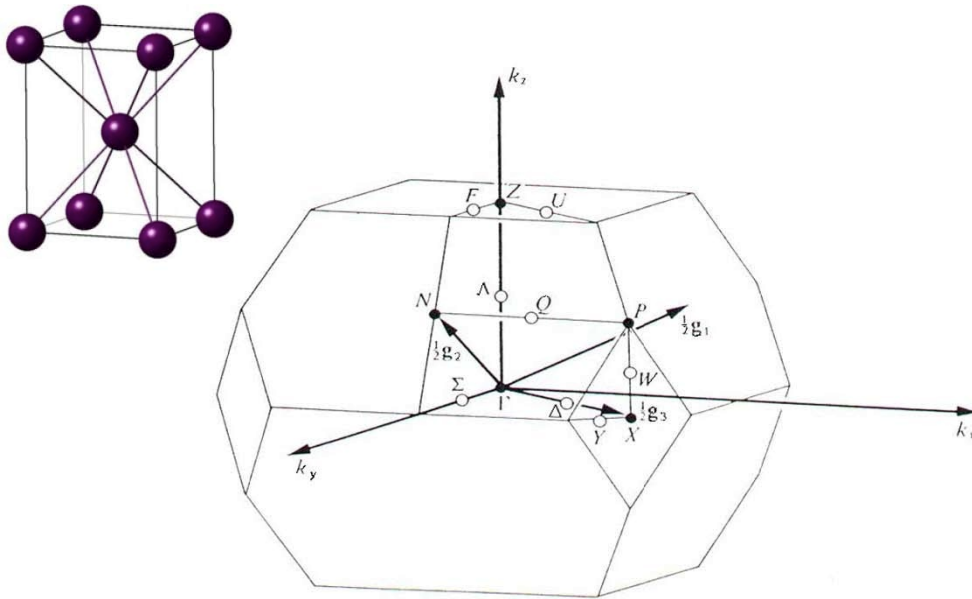
## 7 Body Centered Tetragonal $c < a$



Condition  $c < a$

Point	$(g_1 g_2 g_3)$
$\Gamma$	(000)
$N$	$(0 \frac{1}{2} 0)$
$X$	$(00 \frac{1}{2})$
$Z$	$(\frac{1}{2} \frac{1}{2} \frac{1}{2})$
$P$	$(\frac{1}{4} \frac{1}{4} \frac{1}{4})$

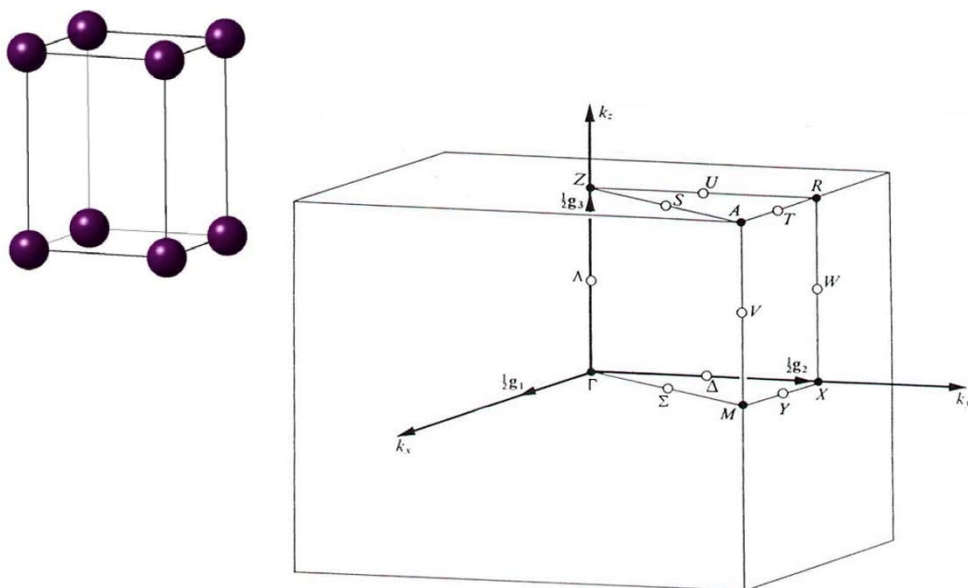
## 8 Body Centered Tetragonal $c > a$



Condition  $c > a$

Point	$(g_1 g_2 g_3)$
$\Gamma$	(000)
$N$	$(0 \frac{1}{2} 0)$
$X$	$(0 0 \frac{1}{2})$
$Z$	$(\frac{1}{2} \frac{1}{2})$
$P$	$(\frac{1}{4} \frac{1}{4} \frac{1}{4})$

## 9 Simple Tetragonal

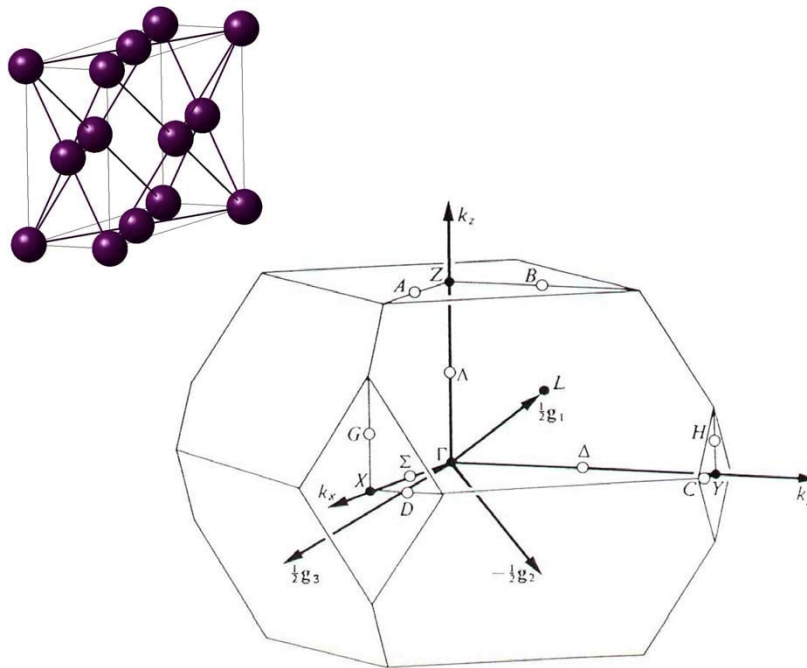


Condition  $c > a$



Point	$(g_1g_2g_3)$
$\Gamma$	(000)
$M$	$(\frac{1}{2}\frac{1}{2}0)$
$Z$	$(00\frac{1}{2})$
$A$	$(\frac{1}{2}\frac{1}{2}\frac{1}{2})$
$R$	$(0\frac{1}{2}\frac{1}{2})$
$X$	$(0\frac{1}{2}0)$

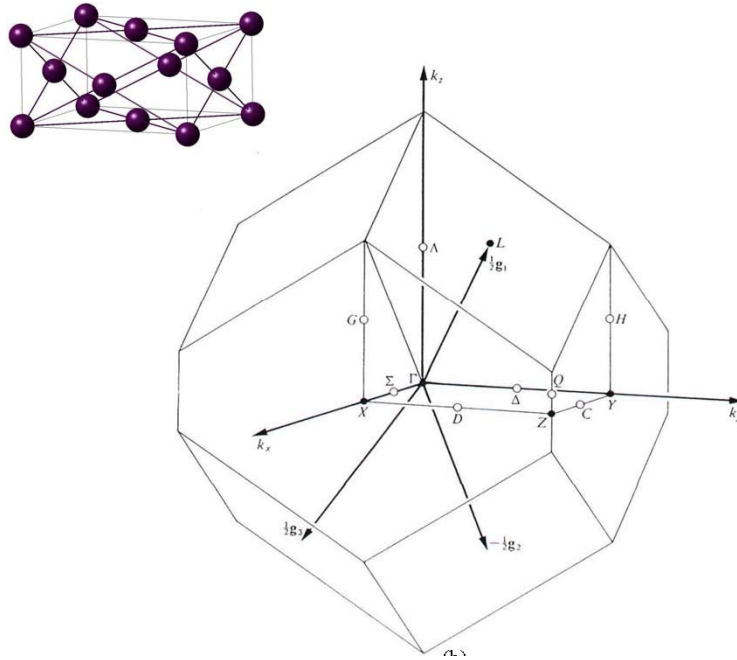
### 10 Face centered orthorhombic $\frac{1}{a} < (\frac{1}{b} + \frac{1}{c})$ , $\frac{1}{b} < (\frac{1}{c} + \frac{1}{a})$ and $\frac{1}{c} < (\frac{1}{a} + \frac{1}{b})$



Condition  $\frac{1}{a^2} < (\frac{1}{b^2} + \frac{1}{c^2}) \cap \frac{1}{b^2} < (\frac{1}{a^2} + \frac{1}{c^2}) \cap \frac{1}{c^2} < (\frac{1}{a^2} + \frac{1}{b^2})$

Point	$(g_1g_2g_3)$
$\Gamma$	(000)
$Y$	$(0\frac{1}{2}\frac{1}{2})$
$X$	$(\frac{1}{2}0\frac{1}{2})$
$Z$	$(\frac{1}{2}\frac{1}{2}0)$
$L$	$(\frac{1}{2}00)$

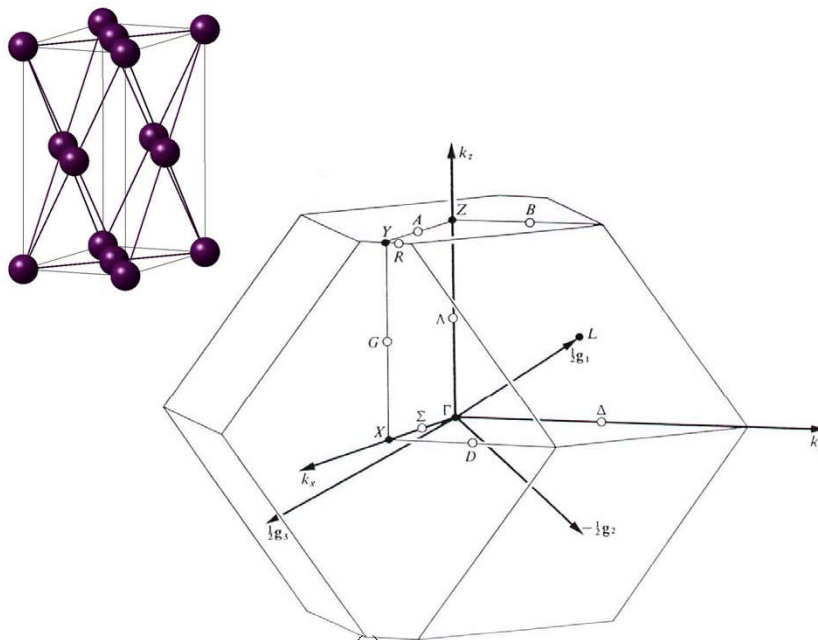
## 11 Face Centered Orthorhombic with $1/c^2 > (1/a^2 + 1/b^2)$



Condition  $\frac{1}{c^2} < (\frac{1}{a^2} + \frac{1}{b^2})$

Point	$(g_1 g_2 g_3)$
$\Gamma$	(000)
Y	$(0 \frac{1}{2} \frac{1}{2})$
X	$(\frac{1}{2} 0 \frac{1}{2})$
Z	$(\frac{1}{2} \frac{1}{2} 0)$
L	$(\frac{1}{2} 0)$

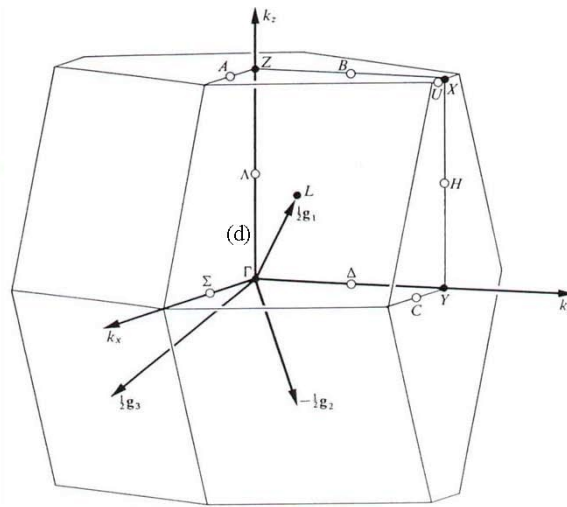
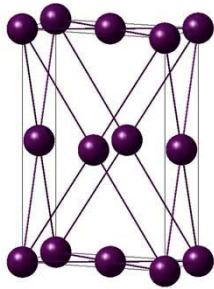
## 12 Face Centered Orthorhombic with $1/b^2 > (1/a^2 + 1/c^2)$



Condition  $\frac{1}{b^2} < (\frac{1}{a^2} + \frac{1}{c^2})$

Point	$(g_1g_2g_3)$
$\Gamma$	(000)
Y	$(\frac{1}{2}\frac{1}{2}\frac{1}{2})$
X	$(\frac{1}{2}0\frac{1}{2})$
Z	$(\frac{1}{2}\frac{1}{2}0)$
L	$(\frac{1}{2}0)$

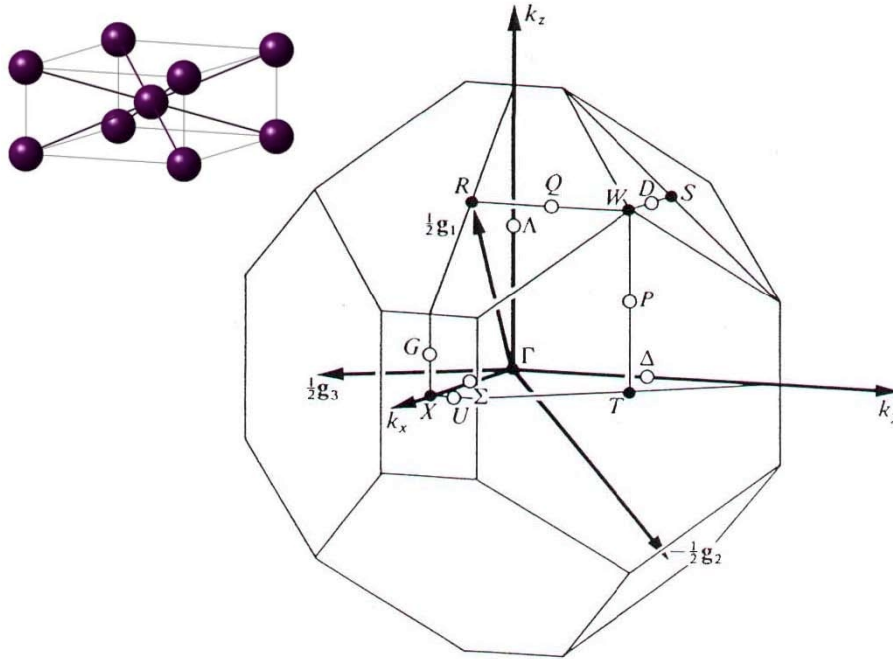
### 13 Face Centered Orthorhombic with $1/a^2 > (1/b^2+1/c^2)$



Condition  $\frac{1}{a^2} < (\frac{1}{b^2} + \frac{1}{c^2})$

Point	$(g_1g_2g_3)$
$\Gamma$	(000)
Y	$(0\frac{1}{2}\frac{1}{2})$
X	$(\frac{1}{2}0\frac{1}{2})$
Z	$(\frac{1}{2}\frac{1}{2}0)$
L	$(\frac{1}{2}0)$

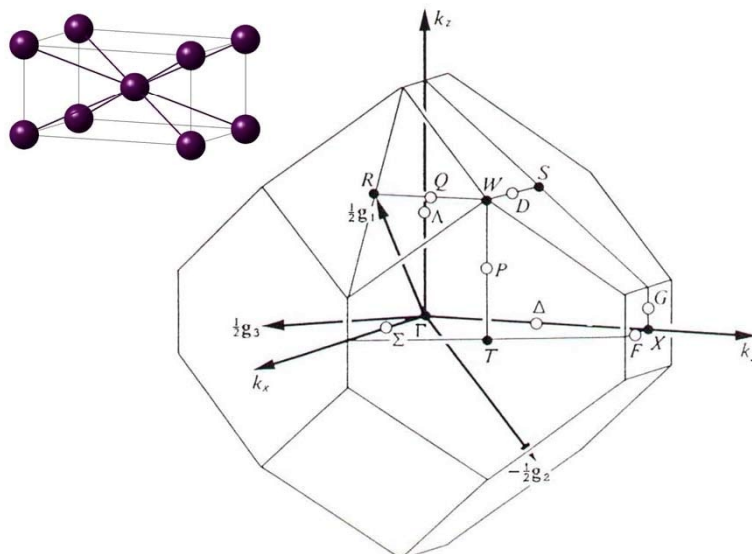
## 14 Body Centered Orthorhombic for $a > b > c$ or $a > c > b$



Condition  $a > b > c \cup a > c > b$

Point	$(g_1 g_2 g_3)$
$\Gamma$	(0)
X	$(\frac{1}{2} \frac{1}{2} \frac{1}{2})$
R	$(\frac{1}{2} 0)$
S	$(\frac{1}{2} 0 \frac{1}{2})$
T	$(\frac{1}{2} \frac{1}{2} 0)$
W	$(\frac{3}{4} \frac{1}{4} \frac{1}{4})$

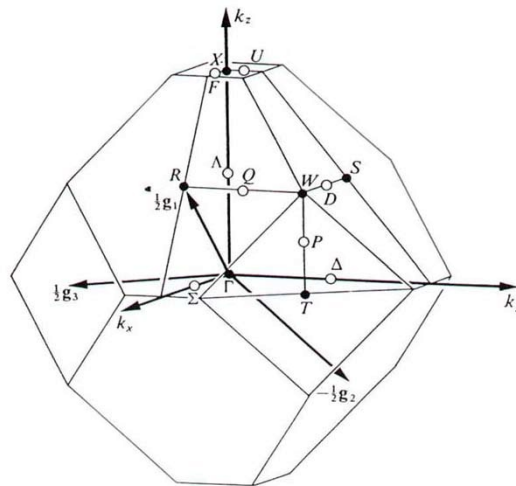
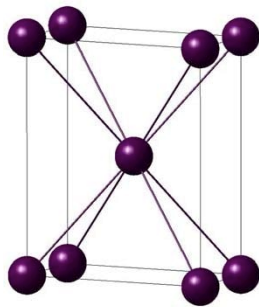
## 15 Body Centered Orthorhombic for $b > a > c$ or $b > c > a$



Condition  $b > a > c \cup b > c > a$

Point	$(g_1 g_2 g_3)$
$\Gamma$	(000)
$Y$	$(\frac{1}{2} \frac{1}{2} \frac{1}{2})$
$R$	$(\frac{1}{2} 0 0)$
$S$	$(\frac{1}{2} 0 \frac{1}{2})$
$T$	$(\frac{1}{2} \frac{1}{2} 0)$
$W$	$(\frac{3}{4} \frac{1}{4} \frac{1}{4})$

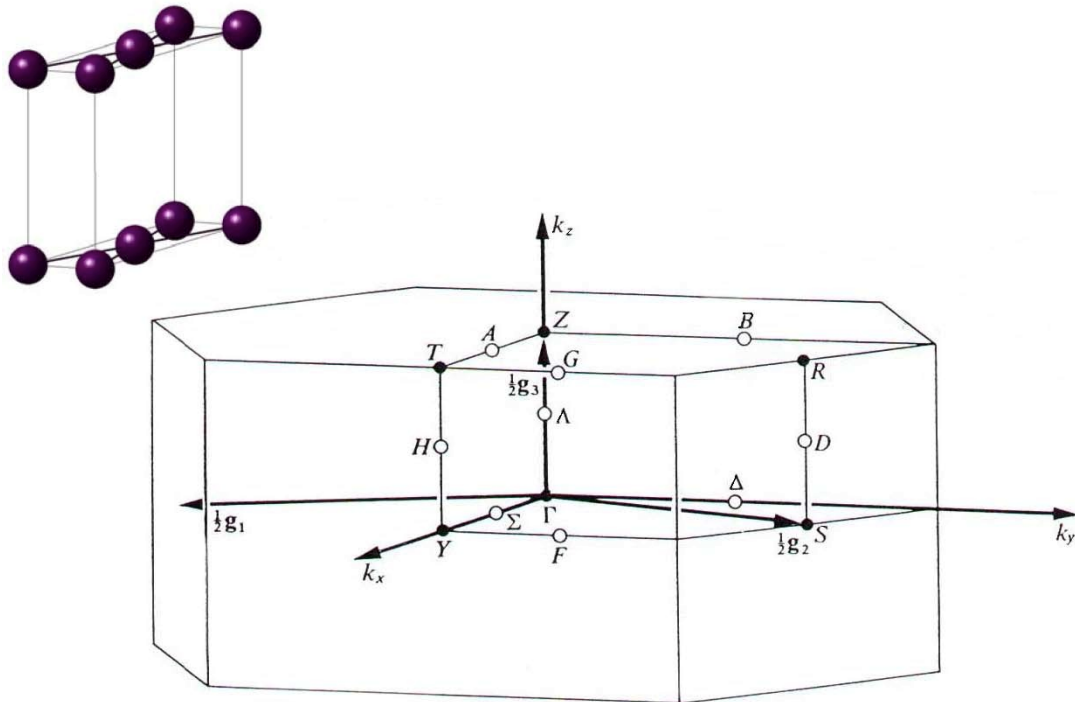
## 16 Body Centered Orthorhombic for $c > b > a$ or $c > a > b$



Condition  $c > b > a \cup c > a > b$

Point	$(g_1 g_2 g_3)$
$\Gamma$	(000)
$Y$	$(\frac{1}{2} \frac{1}{2} \frac{1}{2})$
$R$	$(\frac{1}{2} 0 0)$
$S$	$(\frac{1}{2} 0 \frac{1}{2})$
$T$	$(\frac{1}{2} \frac{1}{2} 0)$
$W$	$(\frac{3}{4} \frac{1}{4} \frac{1}{4})$

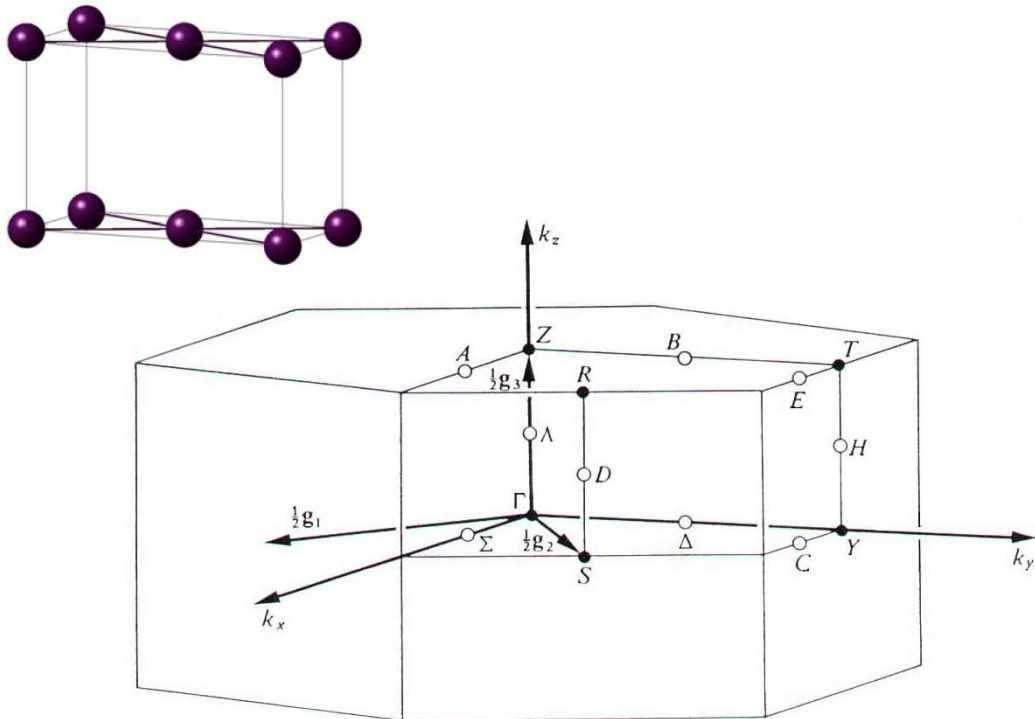
## 17 Base Centered Orthorhombic $a > b$



Condition  $a > b$

Point	$(g_1 g_2 g_3)$
$\Gamma$	(000)
Y	$(\frac{1}{2} \frac{1}{2} 0)$
Z	$(00 \frac{1}{2})$
T	$(\frac{1}{2} \frac{1}{2} \frac{1}{2})$
S	$(0 \frac{1}{2} 0)$
R	$(0 \frac{1}{2} \frac{1}{2})$

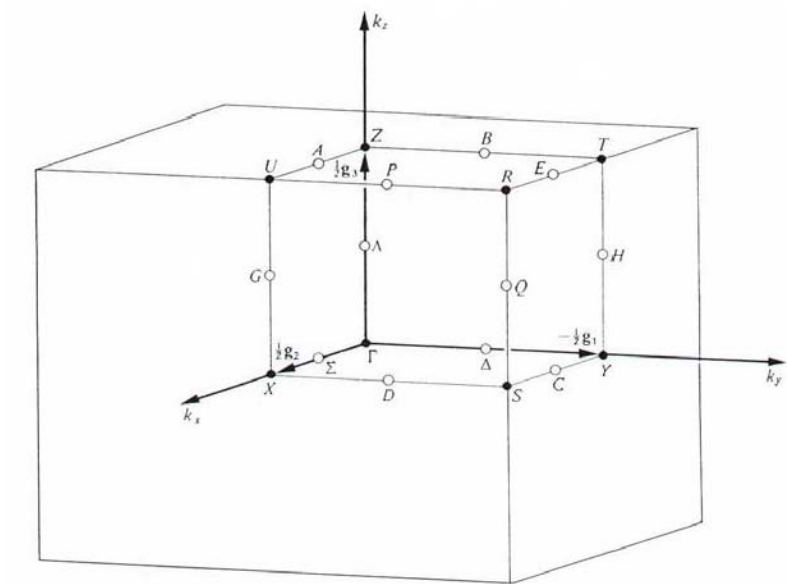
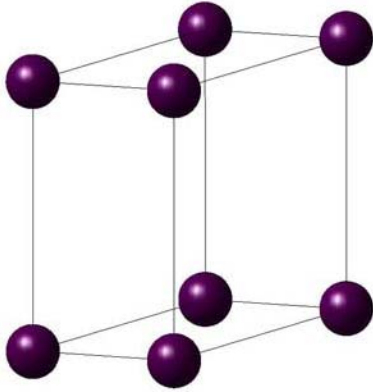
## 18 Base Centered Orthorhombic $b > a$



Condition  $b > a$

Point	$(g_1 g_2 g_3)$
$\Gamma$	(000)
Y	$(\frac{1}{2} \frac{1}{2} 0)$
Z	$(00 \frac{1}{2})$
T	$(\frac{1}{2} \frac{1}{2} \frac{1}{2})$
S	$(0 \frac{1}{2} 0)$
R	$(0 \frac{1}{2} \frac{1}{2})$

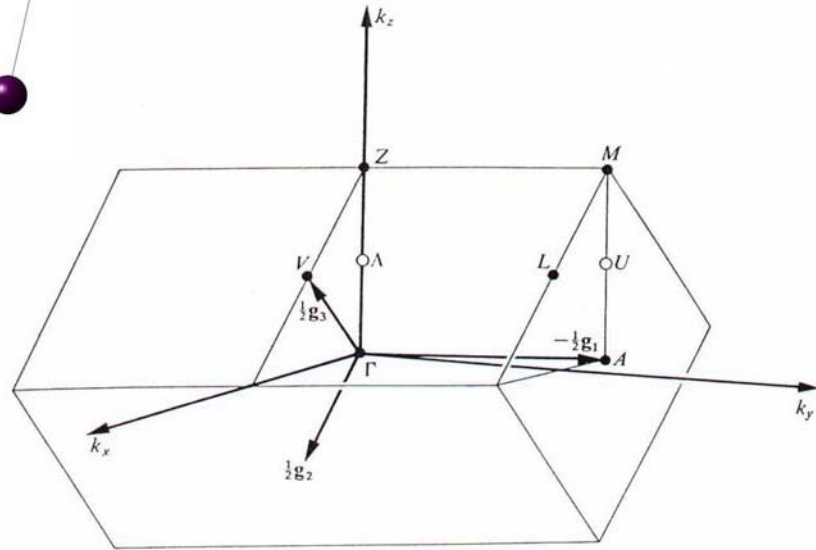
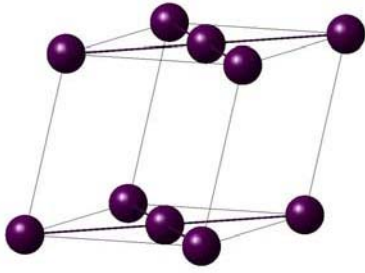
## 19 Simple Orthorhombic



Point	$(g_1 g_2 g_3)$
$\Gamma$	(000)
Y	$(\frac{1}{2} 0 0)$
X	$(0 \frac{1}{2} 0)$
Z	$(0 0 \frac{1}{2})$
U	$(0 \frac{1}{2} \frac{1}{2})$
T	$(\frac{1}{2} 0 \frac{1}{2})$
S	$(\frac{1}{2} \frac{1}{2} 0)$
R	$(\frac{1}{2} \frac{1}{2} \frac{1}{2})$

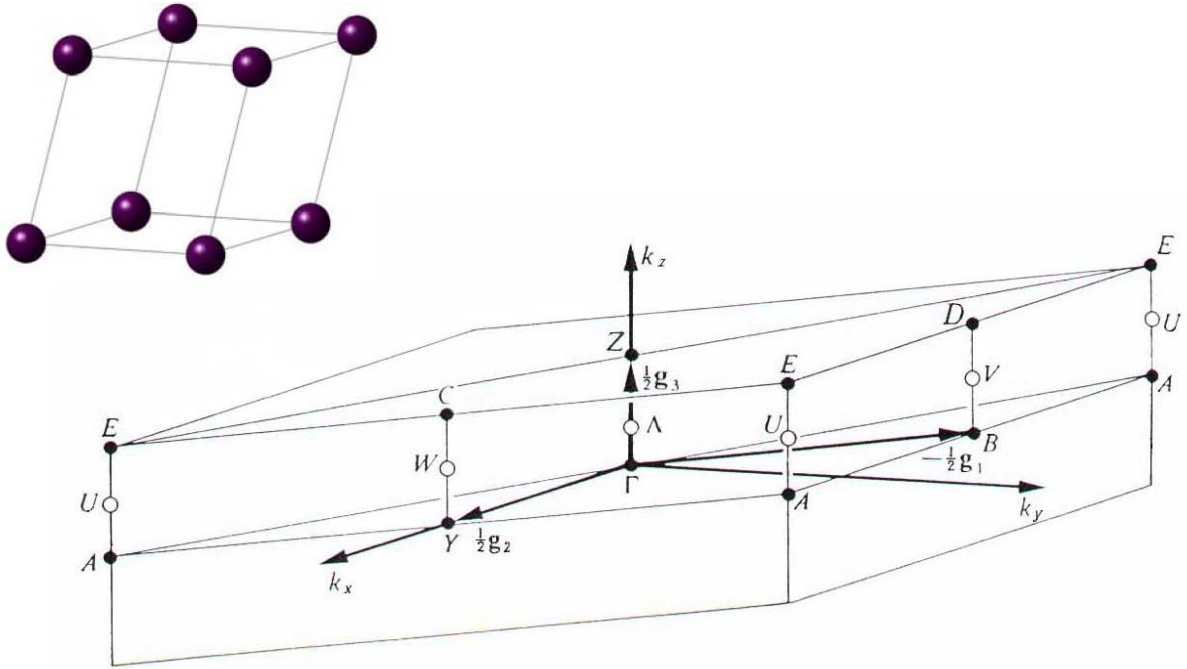


## 20 Base Centered Monoclinic



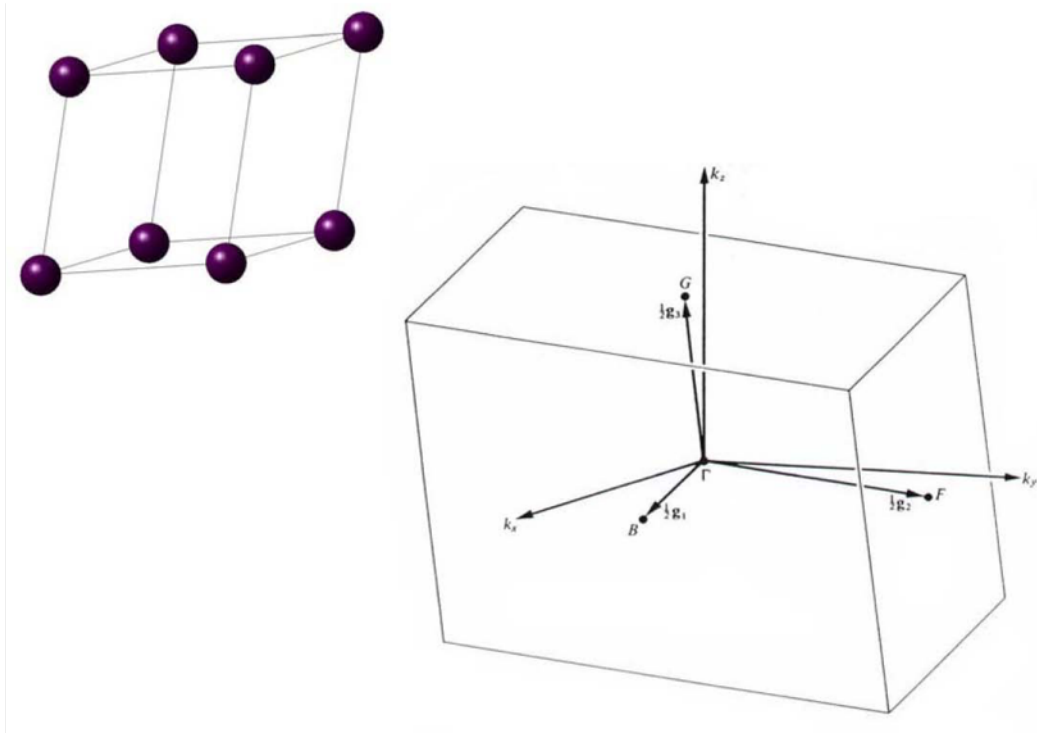
Point	$(g_1 g_2 g_3)$
$\Gamma$	(000)
$A$	$(\frac{1}{2} 0 0)$
$Z$	$(0 \frac{1}{2} \frac{1}{2})$
$M$	$(\frac{1}{2} \frac{1}{2} \frac{1}{2})$
$L$	$(\frac{1}{2} 0 \frac{1}{2})$
$V$	$(0 0 \frac{1}{2})$

## 21 Simple Monoclinic



Point	$(g_1 g_2 g_3)$	as well as
$\Gamma$	(000)	
$B$	$(\frac{1}{2}00)$	
$Y$	$(0\frac{1}{2}0)$	
$Z$	$(00\frac{1}{2})$	
$C$	$(0\frac{1}{2}\frac{1}{2})$	
$D$	$(\frac{1}{2}\frac{1}{2}\frac{1}{2})$	
$A$	$(\frac{1}{2}\frac{1}{2}0)$	$(\frac{1}{2}\frac{1}{2}0)$ or $(\frac{1}{2}\frac{1}{2}0)$
$E$	$(\frac{1}{2}\frac{1}{2}\frac{1}{2})$	$(\frac{1}{2}\frac{1}{2}\frac{1}{2})$ or $(\frac{1}{2}\frac{1}{2}\frac{1}{2})$

## 22 Triclinic



Point	$(g_1 g_2 g_3)$
$\Gamma$	(000)
$B$	$(\frac{1}{2} 0 0)$
$F$	$(0 \frac{1}{2} 0)$
$G$	$(0 0 \frac{1}{2})$