

$P4nc$

$C_{4v}^6$

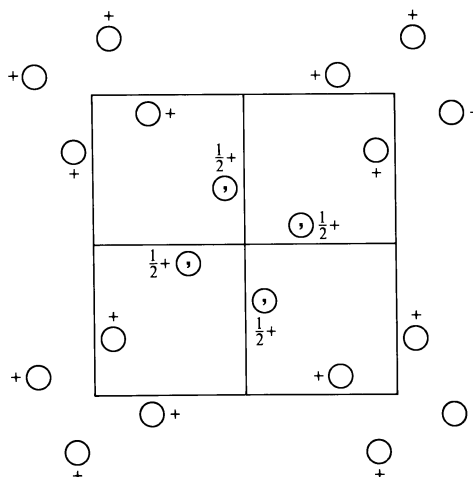
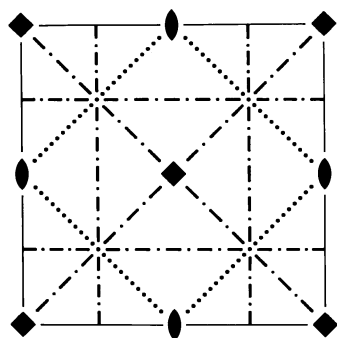
$4mm$

Tetragonal

No. 104

$P4nc$

Patterson symmetry  $P4/mmm$



Origin on  $41n$

Asymmetric unit  $0 \leq x \leq \frac{1}{2}; 0 \leq y \leq \frac{1}{2}; 0 \leq z \leq \frac{1}{2}$

Symmetry operations

- (1) 1 (2)  $2\ 0,0,z$  (3)  $4^+ 0,0,z$  (4)  $4^- 0,0,z$   
 (5)  $n(\frac{1}{2},0,\frac{1}{2})\ x,\frac{1}{4},z$  (6)  $n(0,\frac{1}{2},\frac{1}{2})\ \frac{1}{4},y,z$  (7)  $c\ x+\frac{1}{2},\bar{x},z$  (8)  $n(\frac{1}{2},\frac{1}{2},\frac{1}{2})\ x,x,z$

Generators selected (1);  $t(1,0,0)$ ;  $t(0,1,0)$ ;  $t(0,0,1)$ ; (2); (3); (5)

Positions

Multiplicity,  
Wyckoff letter,  
Site symmetry

Coordinates

Reflection conditions

- 8  $c\ 1$  (1)  $x,y,z$  (2)  $\bar{x},\bar{y},z$  (3)  $\bar{y},x,z$  (4)  $y,\bar{x},z$   
 (5)  $x+\frac{1}{2},\bar{y}+\frac{1}{2},z+\frac{1}{2}$  (6)  $\bar{x}+\frac{1}{2},y+\frac{1}{2},z+\frac{1}{2}$  (7)  $\bar{y}+\frac{1}{2},\bar{x}+\frac{1}{2},z+\frac{1}{2}$  (8)  $y+\frac{1}{2},x+\frac{1}{2},z+\frac{1}{2}$

General:

- $Ok\bar{l}: k+l=2n$   
 $hhl: l=2n$   
 $00l: l=2n$   
 $h00: h=2n$

Special: as above, plus

- 4  $b\ 2..$   $0,\frac{1}{2},z$   $\frac{1}{2},0,z$   $\frac{1}{2},0,z+\frac{1}{2}$   $0,\frac{1}{2},z+\frac{1}{2}$

$hkl: h+k,l=2n$

- 2  $a\ 4..$   $0,0,z$   $\frac{1}{2},\frac{1}{2},z+\frac{1}{2}$

$hkl: h+k+l=2n$

Symmetry of special projections

Along  $[001]\ p4gm$

$\mathbf{a}' = \mathbf{a}$   $\mathbf{b}' = \mathbf{b}$

Origin at  $0,0,z$

Along  $[100]\ c1m1$

$\mathbf{a}' = \mathbf{b}$   $\mathbf{b}' = \mathbf{c}$

Origin at  $x,0,0$

Along  $[110]\ p1m1$

$\mathbf{a}' = \frac{1}{2}(-\mathbf{a} + \mathbf{b})$   $\mathbf{b}' = \frac{1}{2}\mathbf{c}$

Origin at  $x,x,0$