

$I222$

D_2^8

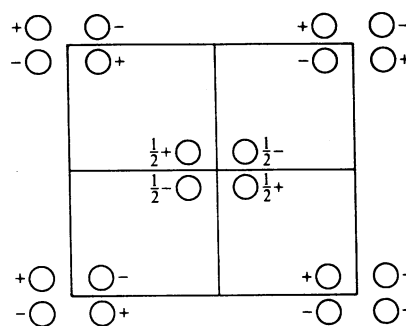
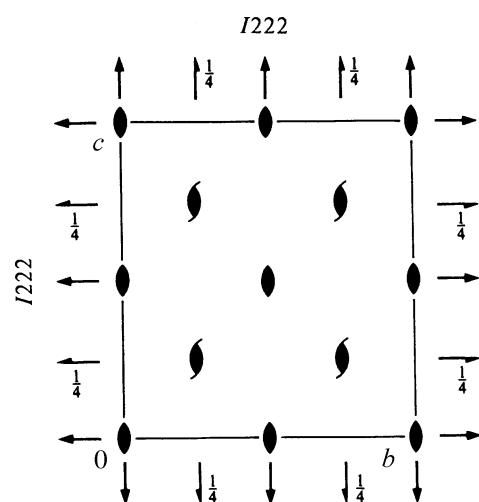
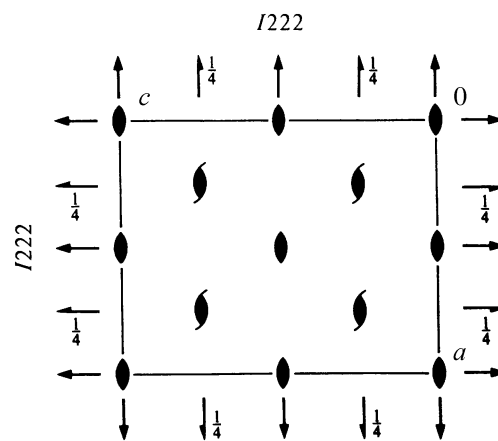
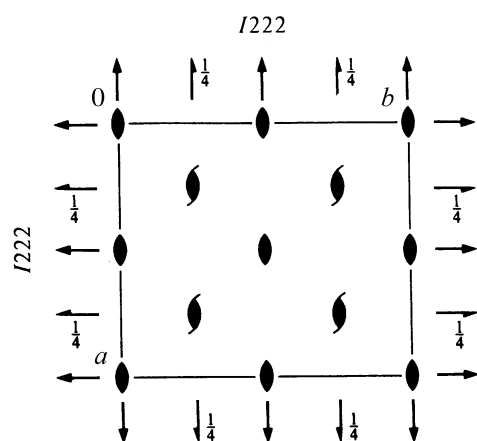
222

Orthorhombic

No. 23

$I222$

Patterson symmetry $Immm$



Origin at 222

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

For $(0,0,0)+$ set

- (1) 1 (2) 2 $0,0,z$ (3) 2 $0,y,0$ (4) 2 $x,0,0$

For $(\frac{1}{2}, \frac{1}{2}, \frac{1}{2})+$ set

- (1) $t(\frac{1}{2}, \frac{1}{2}, \frac{1}{2})$ (2) 2 $(0,0,\frac{1}{2})$ $\frac{1}{4}, \frac{1}{4}, z$ (3) 2 $(0, \frac{1}{2}, 0)$ $\frac{1}{4}, y, \frac{1}{4}$ (4) 2 $(\frac{1}{2}, 0, 0)$ $x, \frac{1}{4}, \frac{1}{4}$

Generators selected (1); $t(1,0,0)$; $t(0,1,0)$; $t(0,0,1)$; $t(\frac{1}{2}, \frac{1}{2}, \frac{1}{2})$; (2); (3)

Positions

Multiplicity,
Wyckoff letter,
Site symmetry

Coordinates

$(0,0,0)+ (\frac{1}{2}, \frac{1}{2}, \frac{1}{2})+$

Reflection conditions

General:

8	<i>k</i>	1	(1) x, y, z	(2) \bar{x}, \bar{y}, z	(3) \bar{x}, y, \bar{z}	(4) x, \bar{y}, \bar{z}
4	<i>j</i>	..2	$0, \frac{1}{2}, z$	$0, \frac{1}{2}, \bar{z}$		
4	<i>i</i>	..2	$0, 0, z$	$0, 0, \bar{z}$		
4	<i>h</i>	.2.	$\frac{1}{2}, y, 0$	$\frac{1}{2}, \bar{y}, 0$		
4	<i>g</i>	.2.	$0, y, 0$	$0, \bar{y}, 0$		
4	<i>f</i>	2..	$x, 0, \frac{1}{2}$	$\bar{x}, 0, \frac{1}{2}$		
4	<i>e</i>	2..	$x, 0, 0$	$\bar{x}, 0, 0$		
2	<i>d</i>	222	$0, \frac{1}{2}, 0$			
2	<i>c</i>	222	$0, 0, \frac{1}{2}$			
2	<i>b</i>	222	$\frac{1}{2}, 0, 0$			
2	<i>a</i>	222	$0, 0, 0$			

$hkl: h+k+l=2n$
 $0kl: k+l=2n$
 $h0l: h+l=2n$
 $hk0: h+k=2n$
 $h00: h=2n$
 $0k0: k=2n$
 $00l: l=2n$

Special: no extra conditions

Symmetry of special projections

Along $[001]$ $c2mm$
 $\mathbf{a}' = \mathbf{a}$ $\mathbf{b}' = \mathbf{b}$
 Origin at $0, 0, z$

Along $[100]$ $c2mm$
 $\mathbf{a}' = \mathbf{b}$ $\mathbf{b}' = \mathbf{c}$
 Origin at $x, 0, 0$

Along $[010]$ $c2mm$
 $\mathbf{a}' = \mathbf{c}$ $\mathbf{b}' = \mathbf{a}$
 Origin at $0, y, 0$