

$p2_122$

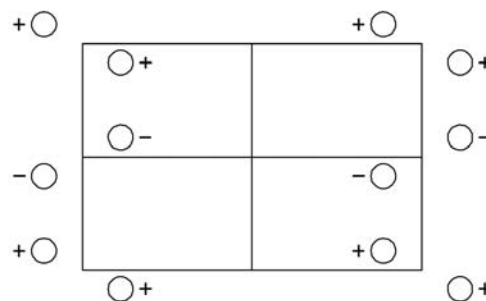
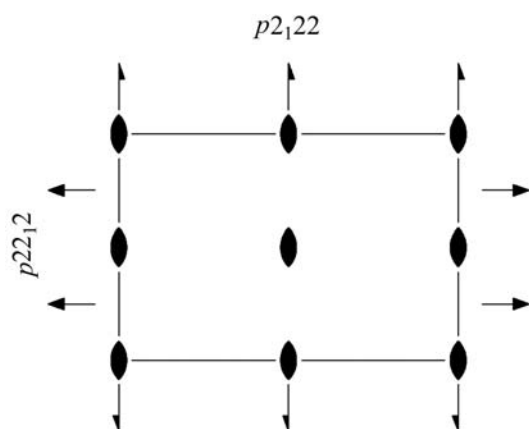
222

Orthorhombic/Rectangular

No. 20

$p2_122$

Patterson symmetry  $pmmm$



Origin at  $2_112$

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

Symmetry operations

- (1) 1 (2)  $2(\frac{1}{2}, 0, 0) \quad x, 0, 0$  (3)  $2(\frac{1}{4}, y, 0)$  (4)  $2(0, 0, z)$   
 (1|0, 0, 0) (2<sub>x</sub>|\frac{1}{2}, 0, 0) (2<sub>y</sub>|\frac{1}{2}, 0, 0) (2<sub>z</sub>|0, 0, 0)

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

**Positions**

	Multiplicity, Wyckoff letter, Site symmetry	Coordinates				Reflection conditions
4	$d$ 1	(1) $x, y, z$	(2) $x + \frac{1}{2}, \bar{y}, \bar{z}$	(3) $\bar{x} + \frac{1}{2}, y, \bar{z}$	(4) $\bar{x}, \bar{y}, z$	General: $h0: h = 2n$ Special: as above, plus no extra conditions $hk: h = 2n$ $hk: h = 2n$
2	$c$ . 2 .	$\frac{1}{4}, y, 0$	$\frac{3}{4}, \bar{y}, 0$			
2	$b$ . . 2	$0, \frac{1}{2}, z$	$\frac{1}{2}, \frac{1}{2}, \bar{z}$			
2	$a$ . . 2	$0, 0, z$	$\frac{1}{2}, 0, \bar{z}$			

**Symmetry of special projections**

Along [001]  $p2mg$   
 $\mathbf{a}' = \mathbf{a}$      $\mathbf{b}' = \mathbf{b}$   
 Origin at  $0, 0, z$

Along [100]  $\not p2mm$   
 $\mathbf{a}' = \mathbf{b}$   
 Origin at  $x, 0, 0$

Along [010]  $\not p2mg$   
 $\mathbf{a}' = \mathbf{a}$   
 Origin at  $\frac{1}{4}, y, 0$

**Maximal non-isotypic subgroups**

**I**    [2]  $p2_111$  (9)    1; 2  
       [2]  $p121$  ( $p211$ , 8)    1; 3  
       [2]  $p112$  (3)    1; 4

**IIa**    none

**IIb**    [2]  $p2_12_12$  ( $\mathbf{b}' = 2\mathbf{b}$ ) (21)

**Maximal isotypic subgroups of lowest index**

**IIc**    [2]  $p2_122$  ( $\mathbf{b}' = 2\mathbf{b}$ ) (20); [3]  $p2_122$  ( $\mathbf{a}' = 3\mathbf{a}$ ) (20)

**Minimal non-isotypic supergroups**

**I**    [2]  $pmam$  (40); [2]  $pmma$  (41); [2]  $pman$  (42); [2]  $pbaa$  (43); [2]  $pbma$  (45)

**II**    [2]  $c222$  (22); [2]  $p222$  ( $\mathbf{a}' = \frac{1}{2}\mathbf{a}$ ) (19)