

$P2_12_12$

D_2^3

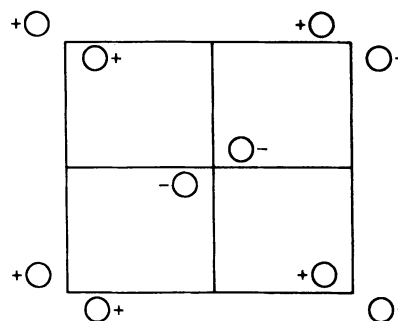
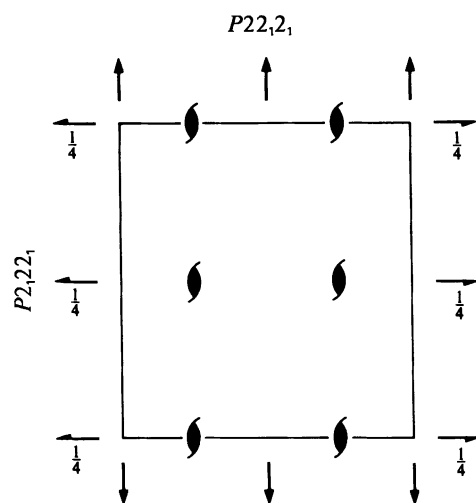
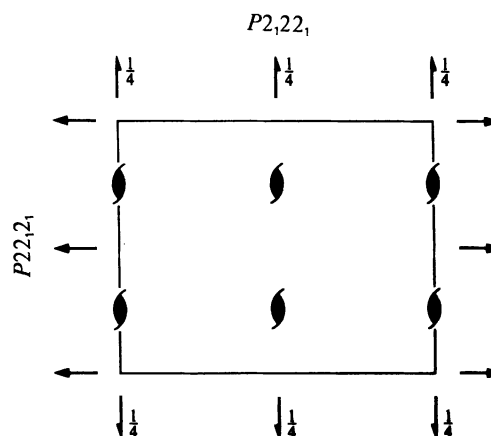
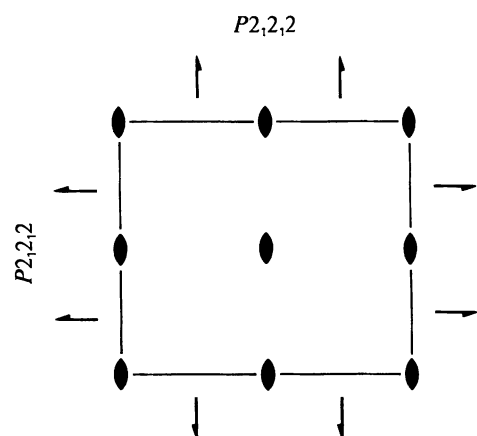
222

Orthorhombic

No. 18

$P2_12_12$

Patterson symmetry $Pmmm$



Origin at intersection of 2 with perpendicular plane containing 2_1 axes

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

Symmetry operations

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

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

Positions

Multiplicity, Wyckoff letter, Site symmetry	Coordinates				Reflection conditions
					General:
4 <i>c</i> 1	(1) x,y,z	(2) \bar{x},\bar{y},z	(3) $\bar{x} + \frac{1}{2}, y + \frac{1}{2}, \bar{z}$	(4) $x + \frac{1}{2}, \bar{y} + \frac{1}{2}, \bar{z}$	$h00: h = 2n$ $0k0: k = 2n$
2 <i>b</i> ..2	$0, \frac{1}{2}, z$	$\frac{1}{2}, 0, \bar{z}$			Special: as above, plus $hk0: h + k = 2n$
2 <i>a</i> ..2	$0, 0, z$	$\frac{1}{2}, \frac{1}{2}, \bar{z}$			$hk0: h + k = 2n$

Symmetry of special projections

Along [001] $p2gg$
 $\mathbf{a}' = \mathbf{a}$ $\mathbf{b}' = \mathbf{b}$
Origin at $0, 0, z$

Along [100] $p2mg$
 $\mathbf{a}' = \mathbf{b}$ $\mathbf{b}' = \mathbf{c}$
Origin at $x, \frac{1}{4}, 0$

Along [010] $p2gm$
 $\mathbf{a}' = \mathbf{c}$ $\mathbf{b}' = \mathbf{a}$
Origin at $\frac{1}{4}, y, 0$

Maximal non-isomorphic subgroups

I [2] $P12_11 (P2_1, 4)$ 1; 3
[2] $P2_111 (P2_1, 4)$ 1; 4
[2] $P1112 (P2, 3)$ 1; 2

IIa none

IIIb [2] $P2_12_12_1 (c' = 2c)$ (19)

Maximal isomorphic subgroups of lowest index

IIc [2] $P2_12_12 (c' = 2c)$ (18); [3] $P2_12_12 (a' = 3a \text{ or } b' = 3b)$ (18)

Minimal non-isomorphic supergroups

I [2] $Pbam$ (55); [2] $Pccn$ (56); [2] $Pbcm$ (57); [2] $Pnmm$ (58); [2] $Pmmn$ (59); [2] $Pbcn$ (60); [2] $P4_22_12$ (90); [2] $P4_22_12$ (94);
[2] $P\bar{4}2_1m$ (113); [2] $P\bar{4}2_1c$ (114)

II [2] $A2_122 (C222_1, 20)$; [2] $B2_12_12 (C222_1, 20)$; [2] $C222$ (21); [2] $I222$ (23); [2] $P22_12 (a' = \frac{1}{2}a)$ ($P222_1, 17$);
[2] $P2_122 (b' = \frac{1}{2}b)$ ($P222_1, 17$)