

Pbam

D_{2h}^9

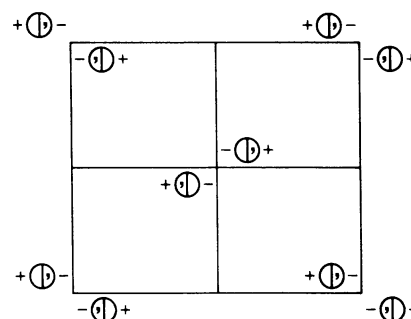
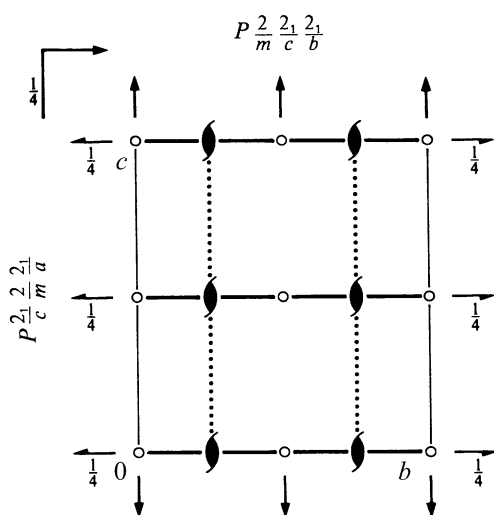
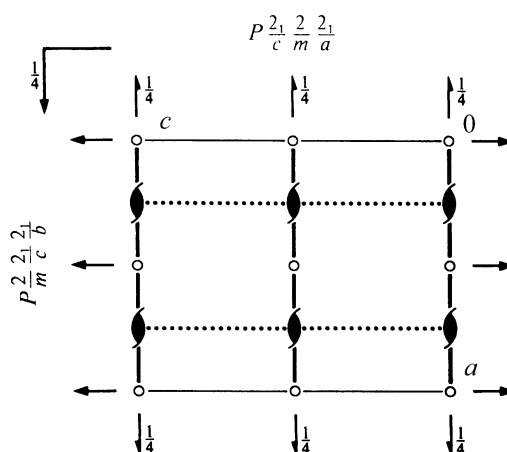
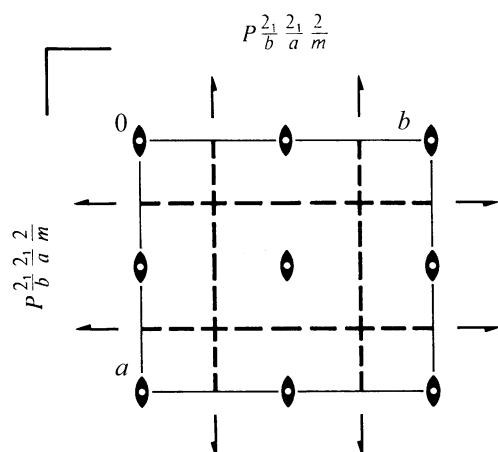
mmm

Orthorhombic

No. 55

$P 2_1/b 2_1/a 2/m$

Patterson symmetry *Pmmm*



Origin at centre ($2/m$)

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) $2(0, \frac{1}{2}, 0) \ \frac{1}{4}, y, 0$ | (4) $2(\frac{1}{2}, 0, 0) \ x, \frac{1}{4}, 0$ |
| (5) $\bar{1} \ 0,0,0$ | (6) $m \ x,y,0$ | (7) $a \ x, \frac{1}{4}, z$ | (8) $b \ \frac{1}{4}, y, z$ |

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	<i>i</i>	1	(1) x, y, z (5) $\bar{x}, \bar{y}, \bar{z}$	(2) \bar{x}, \bar{y}, z (6) x, y, \bar{z}	(3) $\bar{x} + \frac{1}{2}, y + \frac{1}{2}, \bar{z}$ (7) $x + \frac{1}{2}, \bar{y} + \frac{1}{2}, z$	(4) $x + \frac{1}{2}, \bar{y} + \frac{1}{2}, \bar{z}$ (8) $\bar{x} + \frac{1}{2}, y + \frac{1}{2}, z$	
4	<i>h</i>	$\dots m$	$x, y, \frac{1}{2}$	$\bar{x}, \bar{y}, \frac{1}{2}$	$\bar{x} + \frac{1}{2}, y + \frac{1}{2}, \frac{1}{2}$	$x + \frac{1}{2}, \bar{y} + \frac{1}{2}, \frac{1}{2}$	
4	<i>g</i>	$\dots m$	$x, y, 0$	$\bar{x}, \bar{y}, 0$	$\bar{x} + \frac{1}{2}, y + \frac{1}{2}, 0$	$x + \frac{1}{2}, \bar{y} + \frac{1}{2}, 0$	
4	<i>f</i>	$\dots 2$	$0, \frac{1}{2}, z$	$\frac{1}{2}, 0, \bar{z}$	$0, \frac{1}{2}, \bar{z}$	$\frac{1}{2}, 0, z$	
4	<i>e</i>	$\dots 2$	$0, 0, z$	$\frac{1}{2}, \frac{1}{2}, \bar{z}$	$0, 0, \bar{z}$	$\frac{1}{2}, \frac{1}{2}, z$	
2	<i>d</i>	$\dots 2/m$	$0, \frac{1}{2}, \frac{1}{2}$	$\frac{1}{2}, 0, \frac{1}{2}$			
2	<i>c</i>	$\dots 2/m$	$0, \frac{1}{2}, 0$	$\frac{1}{2}, 0, 0$			
2	<i>b</i>	$\dots 2/m$	$0, 0, \frac{1}{2}$	$\frac{1}{2}, \frac{1}{2}, \frac{1}{2}$			
2	<i>a</i>	$\dots 2/m$	$0, 0, 0$	$\frac{1}{2}, \frac{1}{2}, 0$			

General:

$OkI: k = 2n$

$h0I: h = 2n$

$h00: h = 2n$

$0k0: k = 2n$

Special: as above, plus

no extra conditions

no extra conditions

$hkl: h + k = 2n$

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Symmetry of special projectionsAlong [001] $p2gg$

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

Origin at $0, 0, z$ Along [100] $p2mm$

$\mathbf{a}' = \frac{1}{2}\mathbf{b} \quad \mathbf{b}' = \mathbf{c}$

Origin at $x, 0, 0$ Along [010] $p2mm$

$\mathbf{a}' = \mathbf{c} \quad \mathbf{b}' = \frac{1}{2}\mathbf{a}$

Origin at $0, y, 0$