

$Pbcm$

D_{2h}^{11}

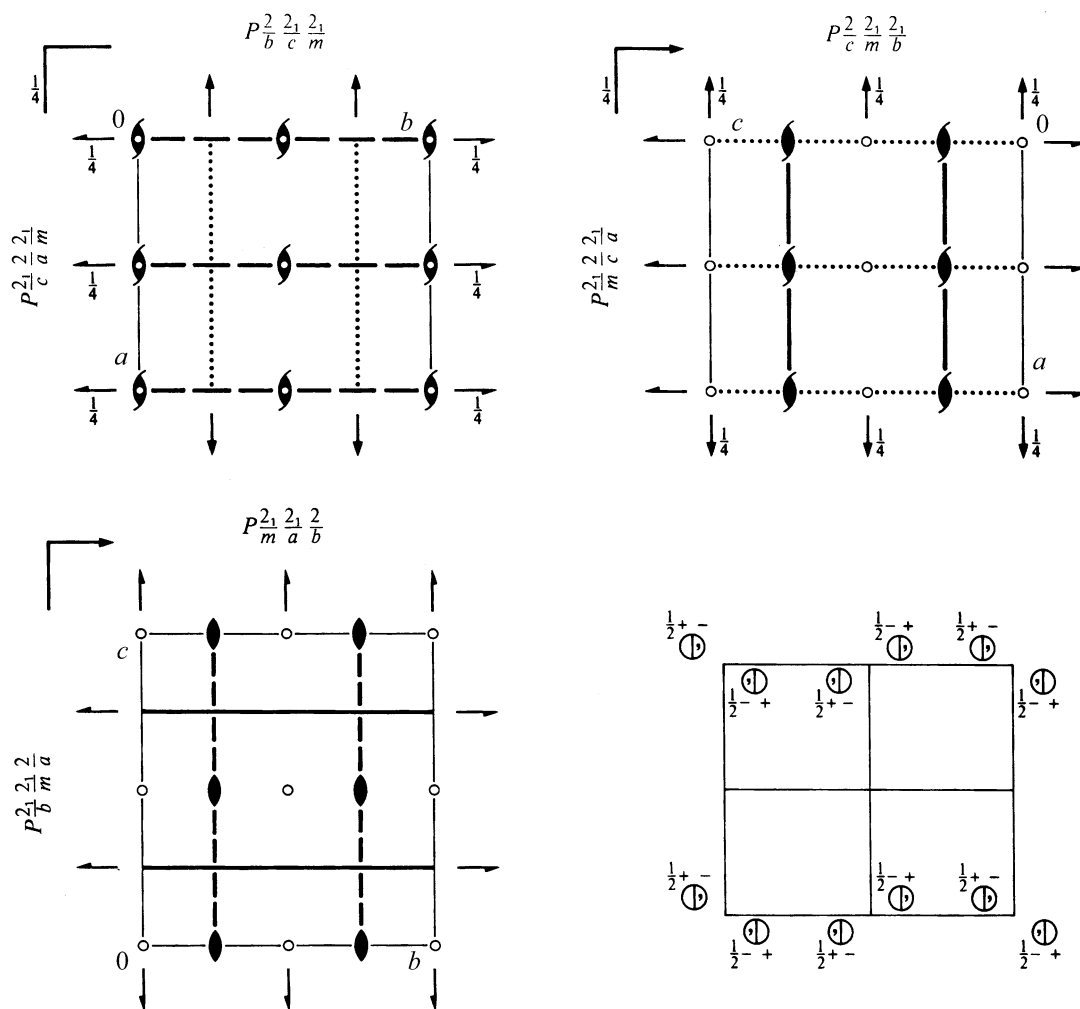
mmm

Orthorhombic

No. 57

$P 2_1/b 2_1/c 2_1/m$

Patterson symmetry $Pmmm$



Origin at $\bar{1}$ on $b12_1$

Asymmetric unit $0 \leq x \leq \frac{1}{2}; 0 \leq y \leq 1; 0 \leq z \leq \frac{1}{4}$

Symmetry operations

- | | | | |
|-------------------------|--------------------------------------|--|-----------------------------|
| (1) 1 | (2) $2(0, 0, \frac{1}{2})$ $0, 0, z$ | (3) $2(0, \frac{1}{2}, 0)$ $0, y, \frac{1}{4}$ | (4) 2 $x, \frac{1}{4}, 0$ |
| (5) $\bar{1}$ $0, 0, 0$ | (6) m $x, y, \frac{1}{4}$ | (7) c $x, \frac{1}{4}, z$ | (8) b $0, y, z$ |

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>e</i>	1	(1) x, y, z	(2) $\bar{x}, \bar{y}, z + \frac{1}{2}$	(3) $\bar{x}, y + \frac{1}{2}, \bar{z} + \frac{1}{2}$	(4) $x, \bar{y} + \frac{1}{2}, \bar{z}$
			(5) $\bar{x}, \bar{y}, \bar{z}$	(6) $x, y, \bar{z} + \frac{1}{2}$	(7) $x, \bar{y} + \frac{1}{2}, z + \frac{1}{2}$	(8) $\bar{x}, y + \frac{1}{2}, z$

General:

 $0kl: k = 2n$ $h0l: l = 2n$ $0k0: k = 2n$ $00l: l = 2n$

Special: as above, plus

4	<i>d</i>	$\dots m$	$x, y, \frac{1}{4}$	$\bar{x}, \bar{y}, \frac{3}{4}$	$\bar{x}, y + \frac{1}{2}, \frac{1}{4}$	$x, \bar{y} + \frac{1}{2}, \frac{3}{4}$
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no extra conditions

4	<i>c</i>	$2 \dots$	$x, \frac{1}{4}, 0$	$\bar{x}, \frac{3}{4}, \frac{1}{2}$	$\bar{x}, \frac{3}{4}, 0$	$x, \frac{1}{4}, \frac{1}{2}$
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 $hkl: l = 2n$

4	<i>b</i>	$\bar{1}$	$\frac{1}{2}, 0, 0$	$\frac{1}{2}, 0, \frac{1}{2}$	$\frac{1}{2}, \frac{1}{2}, \frac{1}{2}$	$\frac{1}{2}, \frac{1}{2}, 0$
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 $hkl: k, l = 2n$

4	<i>a</i>	$\bar{1}$	$0, 0, 0$	$0, 0, \frac{1}{2}$	$0, \frac{1}{2}, \frac{1}{2}$	$0, \frac{1}{2}, 0$
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 $hkl: k, l = 2n$ **Symmetry of special projections**Along $[001]$ $p2gm$ $\mathbf{a}' = \mathbf{a}$ $\mathbf{b}' = \mathbf{b}$ Origin at $0, 0, z$ Along $[100]$ $p2gm$ $\mathbf{a}' = \frac{1}{2}\mathbf{b}$ $\mathbf{b}' = \mathbf{c}$ Origin at $x, 0, 0$ Along $[010]$ $p2mm$ $\mathbf{a}' = \frac{1}{2}\mathbf{c}$ $\mathbf{b}' = \mathbf{a}$ Origin at $0, y, 0$