

$Pmmm$

D_{2h}^1

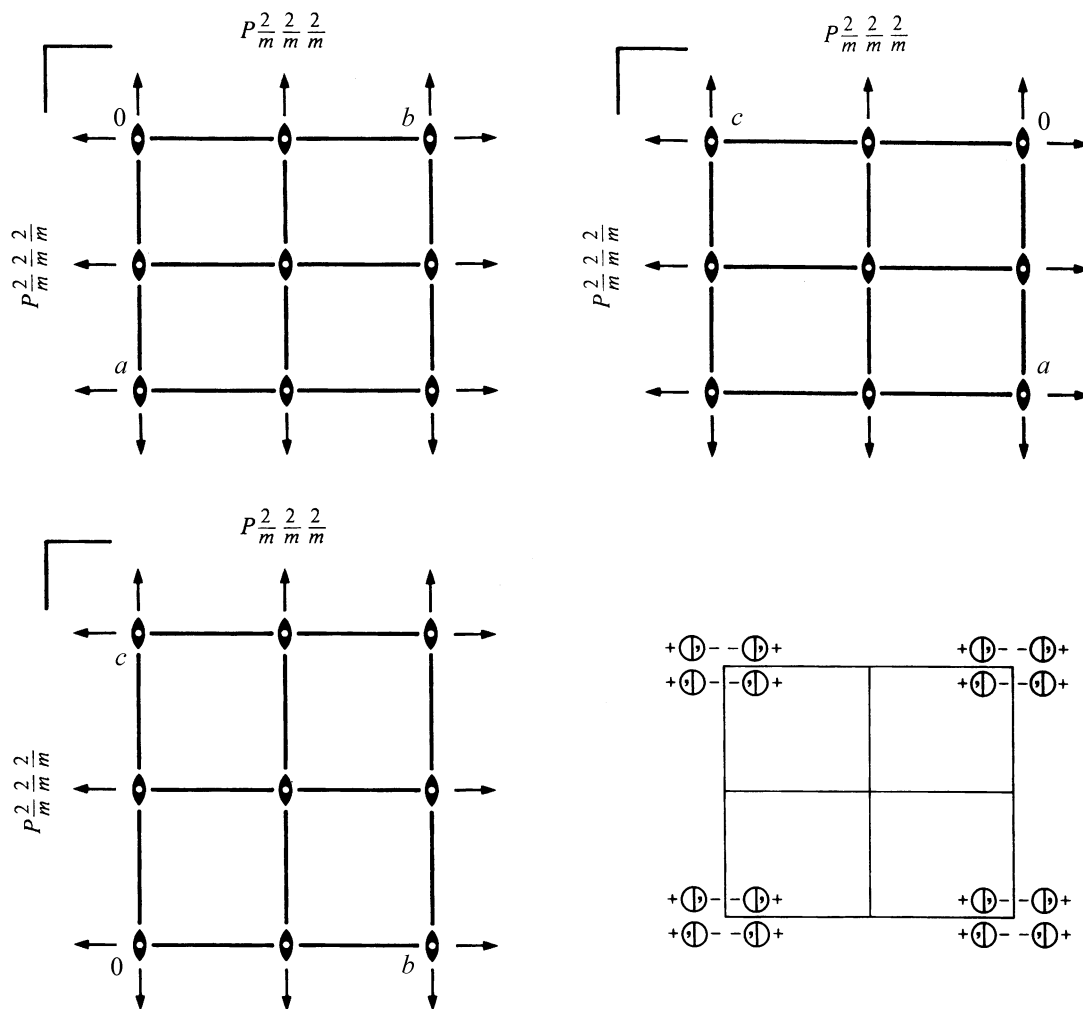
mmm

Orthorhombic

No. 47

$P 2/m 2/m 2/m$

Patterson symmetry $Pmmm$



Origin at centre (mmm)

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

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	
						General:	
8	α 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}, y, \bar{z} (7) x, \bar{y}, z	(4) x, \bar{y}, \bar{z} (8) \bar{x}, y, z	no conditions	
						Special: no extra conditions	
4	z . . m	$x, y, \frac{1}{2}$	$\bar{x}, \bar{y}, \frac{1}{2}$	$\bar{x}, y, \frac{1}{2}$	$x, \bar{y}, \frac{1}{2}$		
4	y . . m	$x, y, 0$	$\bar{x}, \bar{y}, 0$	$\bar{x}, y, 0$	$x, \bar{y}, 0$		
4	x . m .	$x, \frac{1}{2}, z$	$\bar{x}, \frac{1}{2}, z$	$\bar{x}, \frac{1}{2}, \bar{z}$	$x, \frac{1}{2}, \bar{z}$		
4	w . m .	$x, 0, z$	$\bar{x}, 0, z$	$\bar{x}, 0, \bar{z}$	$x, 0, \bar{z}$		
4	v m . .	$\frac{1}{2}, y, z$	$\frac{1}{2}, \bar{y}, z$	$\frac{1}{2}, y, \bar{z}$	$\frac{1}{2}, \bar{y}, \bar{z}$		
4	u m . .	$0, y, z$	$0, \bar{y}, z$	$0, y, \bar{z}$	$0, \bar{y}, \bar{z}$		
2	t $m m 2$	$\frac{1}{2}, \frac{1}{2}, z$	$\frac{1}{2}, \frac{1}{2}, \bar{z}$				
2	s $m m 2$	$\frac{1}{2}, 0, z$	$\frac{1}{2}, 0, \bar{z}$				
2	r $m m 2$	$0, \frac{1}{2}, z$	$0, \frac{1}{2}, \bar{z}$				
2	q $m m 2$	$0, 0, z$	$0, 0, \bar{z}$				
2	p $m 2 m$	$\frac{1}{2}, y, \frac{1}{2}$	$\frac{1}{2}, \bar{y}, \frac{1}{2}$				
2	o $m 2 m$	$\frac{1}{2}, y, 0$	$\frac{1}{2}, \bar{y}, 0$				
2	n $m 2 m$	$0, y, \frac{1}{2}$	$0, \bar{y}, \frac{1}{2}$	1	g $m m m$	$0, \frac{1}{2}, \frac{1}{2}$	
2	m $m 2 m$	$0, y, 0$	$0, \bar{y}, 0$	1	f $m m m$	$\frac{1}{2}, \frac{1}{2}, 0$	
2	l $2 m m$	$x, \frac{1}{2}, \frac{1}{2}$	$\bar{x}, \frac{1}{2}, \frac{1}{2}$	1	e $m m m$	$0, \frac{1}{2}, 0$	
2	k $2 m m$	$x, \frac{1}{2}, 0$	$\bar{x}, \frac{1}{2}, 0$	1	d $m m m$	$\frac{1}{2}, 0, \frac{1}{2}$	
2	j $2 m m$	$x, 0, \frac{1}{2}$	$\bar{x}, 0, \frac{1}{2}$	1	c $m m m$	$0, 0, \frac{1}{2}$	
2	i $2 m m$	$x, 0, 0$	$\bar{x}, 0, 0$	1	b $m m m$	$\frac{1}{2}, 0, 0$	
1	h $m m m$	$\frac{1}{2}, \frac{1}{2}, \frac{1}{2}$		1	a $m m m$	$0, 0, 0$	

Symmetry of special projections

Along $[001]$ $p2mm$
 $\mathbf{a}' = \mathbf{a}$ $\mathbf{b}' = \mathbf{b}$
 Origin at $0, 0, z$

Along $[100]$ $p2mm$
 $\mathbf{a}' = \mathbf{b}$ $\mathbf{b}' = \mathbf{c}$
 Origin at $x, 0, 0$

Along $[010]$ $p2mm$
 $\mathbf{a}' = \mathbf{c}$ $\mathbf{b}' = \mathbf{a}$
 Origin at $0, y, 0$