

Ima2

C_{2v}^{22}

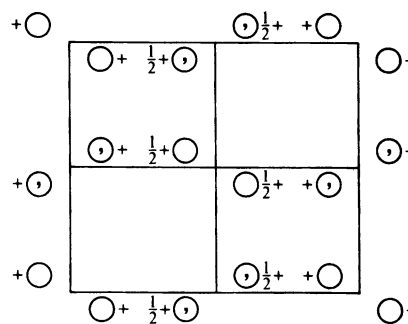
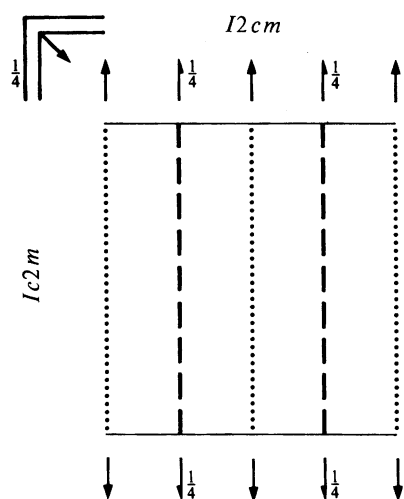
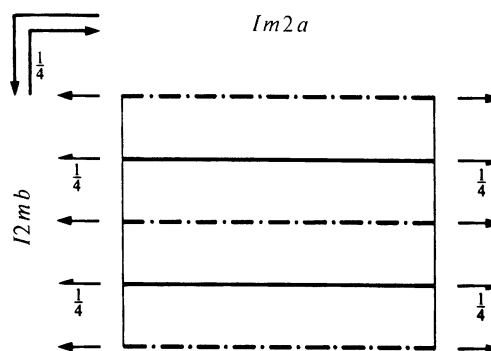
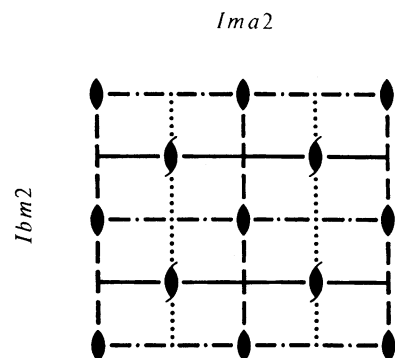
mm2

Orthorhombic

No. 46

Ima2

Patterson symmetry *Immm*



Origin on *na2*

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

Symmetry operations

For $(0,0,0)+$ set

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

For $(\frac{1}{2},\frac{1}{2},\frac{1}{2})+$ set

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

Generators selected (1); $t(1,0,0)$; $t(0,1,0)$; $t(0,0,1)$; $t(\frac{1}{2}, \frac{1}{2}, \frac{1}{2})$; (2); (3)

Positions

Multiplicity, Wyckoff letter, Site symmetry	Coordinates				Reflection conditions
	$(0,0,0) + (\frac{1}{2}, \frac{1}{2}, \frac{1}{2}) +$				General:
8 <i>c</i> 1	(1) x, y, z	(2) \bar{x}, \bar{y}, z	(3) $x + \frac{1}{2}, \bar{y}, z$	(4) $\bar{x} + \frac{1}{2}, y, z$	$hkl : h + k + l = 2n$ $0kl : k + l = 2n$ $h0l : h, l = 2n$ $hk0 : h + k = 2n$ $h00 : h = 2n$ $0k0 : k = 2n$ $00l : l = 2n$
4 <i>b</i> <i>m</i> . .	$\frac{1}{4}, y, z$	$\frac{3}{4}, \bar{y}, z$			Special: as above, plus no extra conditions
4 <i>a</i> . . 2	$0, 0, z$	$\frac{1}{2}, 0, z$			$hkl : h = 2n$

Symmetry of special projections

Along [001] *c2mm*

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

Origin at $\frac{1}{4}, \frac{1}{4}, z$

Along [100] *c1m1*

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

Origin at $x, 0, 0$

Along [010] *p11m*

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

Origin at $0, y, 0$

Maximal non-isomorphic subgroups

I	[2] <i>I1a1</i> (<i>Cc</i> , 9)	(1; 3)+
	[2] <i>Im11</i> (<i>Cm</i> , 8)	(1; 4)+
	[2] <i>I112</i> (<i>C2</i> , 5)	(1; 2)+
IIa	[2] <i>Pna2</i> ₁ (33)	1; 3; (2; 4) + $(\frac{1}{2}, \frac{1}{2}, \frac{1}{2})$
	[2] <i>Pnc2</i> (30)	1; 2; (3; 4) + $(\frac{1}{2}, \frac{1}{2}, \frac{1}{2})$
	[2] <i>Pma2</i> (28)	1; 2; 3; 4
	[2] <i>Pmc2</i> ₁ (26)	1; 4; (2; 3) + $(\frac{1}{2}, \frac{1}{2}, \frac{1}{2})$
IIb	none	

Maximal isomorphic subgroups of lowest index

IIc [3] *Ima2* ($\mathbf{a}' = 3\mathbf{a}$) (46); [3] *Ima2* ($\mathbf{b}' = 3\mathbf{b}$) (46); [3] *Ima2* ($\mathbf{c}' = 3\mathbf{c}$) (46)

Minimal non-isomorphic supergroups

I [2] *Ibam* (72); [2] *Imma* (74)
II [2] *Cmm2* ($\mathbf{c}' = \frac{1}{2}\mathbf{c}$) (35); [2] *Amm2* ($\mathbf{a}' = \frac{1}{2}\mathbf{a}$) (38); [2] *Bme2* ($\mathbf{b}' = \frac{1}{2}\mathbf{b}$) (*Aem2*, 39)