

$\bar{4}2/m$

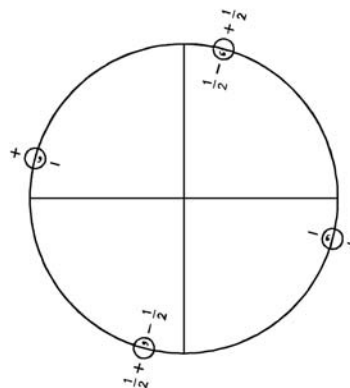
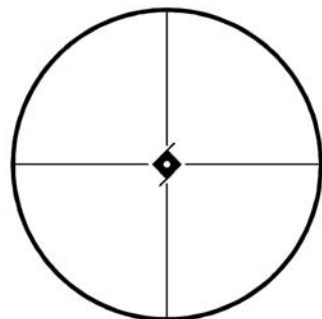
$4/m$

Tetragonal

No. 29

$\bar{4}2/m$

Patterson symmetry  $\bar{4}2/m$



**Origin** at centre  $(2/m)$  on  $4_2$

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

**Symmetry operations**

- |  |                                    |  |  |
|--|------------------------------------|--|--|
| (1) 1<br>(1 0,0,0)                           | (2) $2_{0,0,z}$<br>( $2_z$  0,0,0) | (3) $4^+(\frac{1}{2})_{0,0,z}$<br>( $4_z^+$  0,0, $\frac{1}{2}$ )                | (4) $4^-(\frac{1}{2})_{0,0,z}$<br>( $4_z^-$  0,0, $\frac{1}{2}$ )                |
| (5) $\bar{1}_{0,0,0}$<br>( $\bar{1}$  0,0,0) | (6) $m_{x,y,0}$<br>( $m_z$  0,0,0) | (7) $\bar{4}^+(0,0,z; 0,0,\frac{1}{4})$<br>( $\bar{4}_z^+$  0,0, $\frac{1}{2}$ ) | (8) $\bar{4}^-(0,0,z; 0,0,\frac{1}{4})$<br>( $\bar{4}_z^-$  0,0, $\frac{1}{2}$ ) |

**Generators selected** (1);  $t(0,0,1)$ ; (2); (3); (5)

**Positions**

	Multiplicity, Wyckoff letter, Site symmetry	Coordinates				Reflection conditions
						General:
8	$e$ 1	(1) $x, y, z$ (5) $\bar{x}, \bar{y}, \bar{z}$	(2) $\bar{x}, \bar{y}, z$ (6) $x, y, \bar{z}$	(3) $\bar{y}, x, z + \frac{1}{2}$ (7) $y, \bar{x}, \bar{z} + \frac{1}{2}$	(4) $y, \bar{x}, z + \frac{1}{2}$ (8) $\bar{y}, x, \bar{z} + \frac{1}{2}$	$l : l = 2n$
4	$d$ $m..$	$x, y, 0$	$\bar{x}, \bar{y}, 0$	$\bar{y}, x, \frac{1}{2}$	$y, \bar{x}, \frac{1}{2}$	Special: no extra conditions
4	$c$ $2..$	$0, 0, z$	$0, 0, z + \frac{1}{2}$	$0, 0, \bar{z}$	$0, 0, \bar{z} + \frac{1}{2}$	
2	$b$ $\bar{4}..$	$0, 0, \frac{1}{4}$	$0, 0, \frac{3}{4}$			
2	$a$ $2/m..$	$0, 0, 0$	$0, 0, \frac{1}{2}$			

**Symmetry of special projections**

Along [001] 4	Along [100] $\not\propto 2mm$	Along [110] $\not\propto 2mm$
Origin at 0, 0, z	$\mathbf{a}' = \mathbf{c}$ Origin at $x, 0, 0$	$\mathbf{a}' = \mathbf{c}$ Origin at $x, x, 0$

**Maximal non-isotypic non-enantiomorphic subgroups**

<b>I</b>	$[2] \not\propto \bar{4}$ (27)	1; 2; 7; 8
	$[2] \not\propto 4_2$ (25)	1; 2; 3; 4
	$[2] \not\propto 112/m$ (11)	1; 2; 5; 6

**IIa** none

**IIb** none

**Maximal isotypic subgroups and enantiomorphic subgroups of lowest index**

**IIc**  $[3] \not\propto 4_2/m$  ( $\mathbf{c}' = 3\mathbf{c}$ ) (29)

**Minimal non-isotypic non-enantiomorphic supergroups**

**I**  $[2] \not\propto 4_2/mmc$  (41)

**II**  $[2] \not\propto 4/m$  ( $\mathbf{c}' = \frac{1}{2}\mathbf{c}$ ) (28)