

$p\bar{6}$

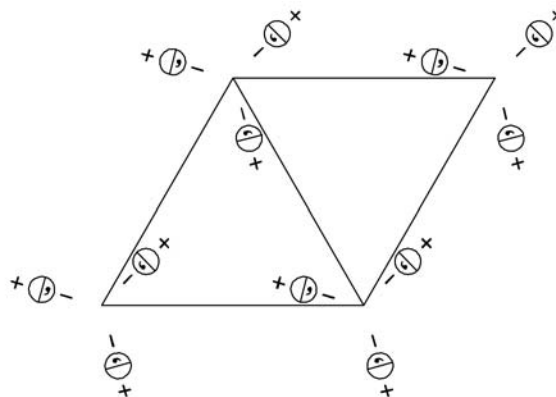
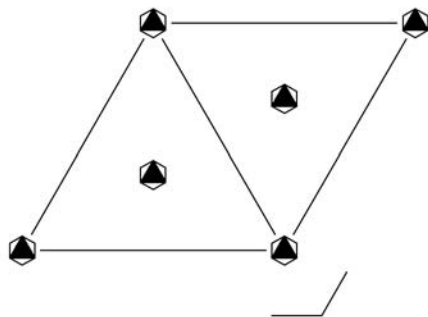
$\bar{6}$

Hexagonal/Hexagonal

No. 74

$p\bar{6}$

Patterson symmetry  $p6/m$



Origin at  $\bar{6}$

**Asymmetric unit**  $0 \leq x \leq \frac{2}{3}; 0 \leq y \leq \frac{2}{3}; x \leq (1+y)/2; y \leq \min(1-x, (1+x)/2); 0 \leq z$   
**Vertices**  $0,0 \quad \frac{1}{2},0 \quad \frac{2}{3},\frac{1}{3} \quad \frac{1}{3},\frac{2}{3} \quad 0,\frac{1}{2}$

**Symmetry operations**

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

**Generators selected** (1);  $t(1,0,0)$ ;  $t(0,1,0)$ ; (2); (4)

**Positions**

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

**Symmetry of special projections**

Along  $[001]$   $p3$   
 $\mathbf{a}' = \mathbf{a}$      $\mathbf{b}' = \mathbf{b}$   
 Origin at  $0, 0, z$

Along  $[100]$   $\bar{6}11m$   
 $\mathbf{a}' = \frac{1}{2}(\mathbf{a} + 2\mathbf{b})$   
 Origin at  $x, 0, 0$

Along  $[210]$   $\bar{6}11m$   
 $\mathbf{a}' = \frac{1}{2}\mathbf{b}$   
 Origin at  $x, \frac{1}{2}x, 0$

**Maximal non-isotypic subgroups**

**I**     $[2] p3$  (65)                    1; 2; 3  
        $[3] pm11$  ( $p11m$ , 4)    1; 4

**IIa**    none

**IIb**    none

**Maximal isotypic subgroups of lowest index**

**IIc**     $[3] h\bar{6}$  ( $\mathbf{a}' = 3\mathbf{a}, \mathbf{b}' = 3\mathbf{b}$ ) ( $p\bar{6}$ , 74)

**Minimal non-isotypic supergroups**

**I**     $[2] p6/m$  (75);  $[2] p\bar{6}m2$  (78);  $[2] p\bar{6}2m$  (79)

**II**    none