

$\mu 6_2 2 2$

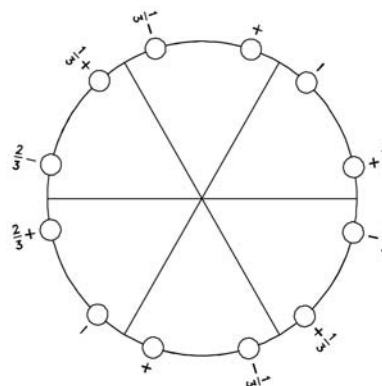
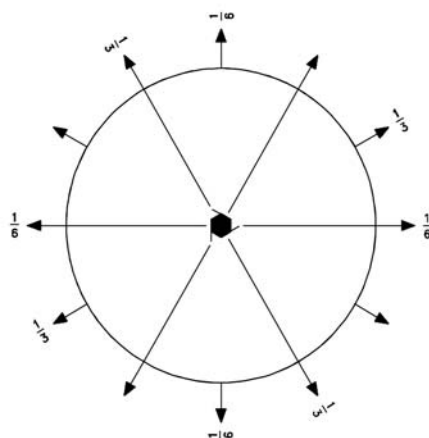
622

Hexagonal

No. 64

$\mu 6_2 2 2$

Patterson symmetry  $\mu 6/mmm$



**Origin** on 222 at  $6_2(2, 1, 1)(1, 2, 1)$

**Asymmetric unit**  $0 \leq x; 0 \leq z \leq \frac{1}{6}$

**Symmetry operations**

- |                                  |                                |                                |
|----------------------------------|--------------------------------|--------------------------------|
| (1) 1                            | (2) $3^+(\frac{2}{3}) 0, 0, z$ | (3) $3^-(\frac{1}{3}) 0, 0, z$ |
| (4) 2 $0, 0, z$                  | (5) $6^-(\frac{2}{3}) 0, 0, z$ | (6) $6^+(\frac{1}{3}) 0, 0, z$ |
| (7) 2 $x, x, \frac{1}{6}$        | (8) 2 $x, 0, 0$                | (9) 2 $0, y, \frac{1}{6}$      |
| (10) 2 $x, \bar{x}, \frac{1}{6}$ | (11) 2 $x, 2x, 0$              | (12) 2 $2x, x, \frac{1}{6}$    |

**Generators selected** (1);  $t(0,0,1)$ ; (2); (4); (7)

**Positions**

Multiplicity, Wyckoff letter, Site symmetry	Coordinates	Reflection conditions
12 <i>h</i> 1	(1) $x, y, z$ (2) $\bar{y}, x - y, z + \frac{2}{3}$ (3) $\bar{x} + y, \bar{x}, z + \frac{1}{3}$ (4) $\bar{x}, \bar{y}, z$ (5) $y, \bar{x} + y, z + \frac{2}{3}$ (6) $x - y, x, z + \frac{1}{3}$ (7) $y, x, \bar{z} + \frac{2}{3}$ (8) $x - y, \bar{y}, \bar{z}$ (9) $\bar{x}, \bar{x} + y, \bar{z} + \frac{1}{3}$ (10) $\bar{y}, \bar{x}, \bar{z} + \frac{2}{3}$ (11) $\bar{x} + y, y, \bar{z}$ (12) $x, x - y, \bar{z} + \frac{1}{3}$	General: $l : l = 3n$  Special: no extra conditions
6 <i>g</i> $\dots 2$	$x, 2x, \frac{1}{2}$ $2\bar{x}, \bar{x}, \frac{1}{6}$ $x, \bar{x}, \frac{5}{6}$ $\bar{x}, 2\bar{x}, \frac{1}{2}$ $2x, x, \frac{1}{6}$ $\bar{x}, x, \frac{5}{6}$	
6 <i>f</i> $\dots 2$	$x, 2x, 0$ $2\bar{x}, \bar{x}, \frac{2}{3}$ $x, \bar{x}, \frac{1}{3}$ $\bar{x}, 2\bar{x}, 0$ $2x, x, \frac{2}{3}$ $\bar{x}, x, \frac{1}{3}$	
6 <i>e</i> $\dots 2$	$x, 0, \frac{1}{2}$ $0, x, \frac{1}{6}$ $\bar{x}, \bar{x}, \frac{5}{6}$ $\bar{x}, 0, \frac{1}{2}$ $0, \bar{x}, \frac{1}{6}$ $x, x, \frac{5}{6}$	
6 <i>d</i> $\dots 2$	$x, 0, 0$ $0, x, \frac{2}{3}$ $\bar{x}, \bar{x}, \frac{1}{3}$ $\bar{x}, 0, 0$ $0, \bar{x}, \frac{2}{3}$ $x, x, \frac{1}{3}$	
6 <i>c</i> $2 \dots$	$0, 0, z$ $0, 0, z + \frac{2}{3}$ $0, 0, z + \frac{1}{3}$ $0, 0, \bar{z} + \frac{2}{3}$ $0, 0, \bar{z}$ $0, 0, \bar{z} + \frac{1}{3}$	
3 <i>b</i> $222$	$0, 0, \frac{1}{2}$ $0, 0, \frac{1}{6}$ $0, 0, \frac{5}{6}$	
3 <i>a</i> $222$	$0, 0, 0$ $0, 0, \frac{2}{3}$ $0, 0, \frac{1}{3}$	

**Symmetry of special projections**

Along [001]  $6mm$

Along [100]  $\bar{6}2mm$

Along [210]  $\bar{6}2mm$

Origin at  $0, 0, z$

$\mathbf{a}' = \mathbf{c}$   
Origin at  $x, 0, 0$

$\mathbf{a}' = \mathbf{c}$   
Origin at  $x, \frac{1}{2}x, \frac{1}{6}$

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

<b>I</b>	$[2]\bar{6}_2 11 (\bar{6}_2, 55)$	1; 2; 3; 4; 5; 6
	$[2]\bar{3}_2 21 (\bar{3}_2 12, 48)$	1; 2; 3; 7; 8; 9
	$[2]\bar{3}_2 12 (48)$	1; 2; 3; 10; 11; 12
	$[3]\bar{6} 222 (\bar{6} 222, 13)$	1; 4; 7; 10
	$[3]\bar{6} 222 (\bar{6} 222, 13)$	1; 4; 8; 11
	$[3]\bar{6} 222 (\bar{6} 222, 13)$	1; 4; 9; 12

**IIa** none

**IIb**  $[2]\bar{6} 6_2 22 (\mathbf{c}' = 2\mathbf{c}) (63)$

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

**IIc**  $[2]\bar{6}_4 22 (\mathbf{c}' = 2\mathbf{c}) (66)$ ;  $[7]\bar{6}_2 22 (\mathbf{c}' = 7\mathbf{c}) (64)$

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

**I** none

**II**  $[3]\bar{6} 622 (\mathbf{c}' = \frac{1}{3}\mathbf{c}) (62)$