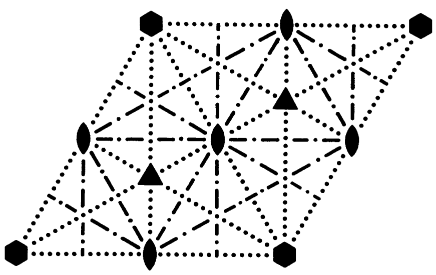
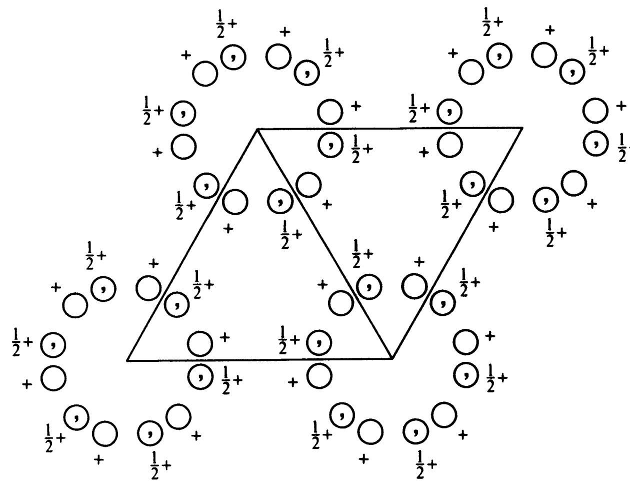
Hexagonal $6mm$ C_{6v}^{2} $P6cc$

Patterson symmetry $P6/mmm$ $P6cc$ No. 184





Origin on $6cc$

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

Vertices $0,0,0$ $\frac{1}{2},0,0$ $\frac{2}{3},\frac{1}{3},0$ $\frac{1}{2},\frac{1}{2},0$

$0,0,\frac{1}{2}$ $\frac{1}{2},0,\frac{1}{2}$ $\frac{2}{3},\frac{1}{3},\frac{1}{2}$ $\frac{1}{2},\frac{1}{2},\frac{1}{2}$

Symmetry operations

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

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

Positions

Multiplicity, Wyckoff letter, Site symmetry			Coordinates						Reflection conditions
									General:
12	d	1	(1) x,y,z	(2) $\bar{y},x-y,z$	(3) $\bar{x}+y,\bar{x},z$				$hh\overline{2h}l$: $l=2n$
			(4) $\bar{x},\bar{y},z$	(5) $y,\bar{x}+y,z$	(6) $x-y,x,z$				$h\bar{h}0l$: $l=2n$
			(7) $\bar{y},\bar{x},z+\frac{1}{2}$	(8) $\bar{x}+y,y,z+\frac{1}{2}$	(9) $x,x-y,z+\frac{1}{2}$				$000l$: $l=2n$
			(10) $y,x,z+\frac{1}{2}$	(11) $x-y,\bar{y},z+\frac{1}{2}$	(12) $\bar{x},\bar{x}+y,z+\frac{1}{2}$				
									Special: as above, plus
6	c	$2\,.\,.$	$\frac{1}{2},0,z$	$0,\frac{1}{2},z$	$\frac{1}{2},\frac{1}{2},z$	$0,\frac{1}{2},z+\frac{1}{2}$	$\frac{1}{2},0,z+\frac{1}{2}$	$\frac{1}{2},\frac{1}{2},z+\frac{1}{2}$	$hkil$: $l=2n$
4	b	$3\,.\,.$	$\frac{1}{3},\frac{2}{3},z$	$\frac{2}{3},\frac{1}{3},z$	$\frac{1}{3},\frac{2}{3},z+\frac{1}{2}$	$\frac{2}{3},\frac{1}{3},z+\frac{1}{2}$			$hkil$: $l=2n$
2	a	$6\,.\,.$	$0,0,z$	$0,0,z+\frac{1}{2}$					$hkil$: $l=2n$

Symmetry of special projections

Along [001] $p6mm$
$\mathbf{a}'=\mathbf{a}$ $\mathbf{b}'=\mathbf{b}$
Origin at $0,0,z$

Along [100] $p1m1$
$\mathbf{a}'=\frac{1}{2}(\mathbf{a}+2\mathbf{b})$ $\mathbf{b}'=\frac{1}{2}\mathbf{c}$
Origin at $x,0,0$

Along [210] $p1m1$
$\mathbf{a}'=\frac{1}{2}\mathbf{b}$ $\mathbf{b}'=\frac{1}{2}\mathbf{c}$
Origin at $x,\frac{1}{2}x,0$