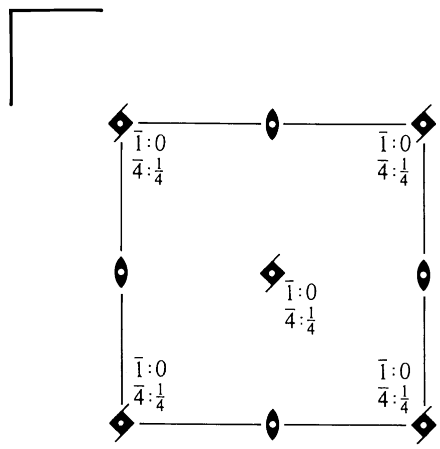
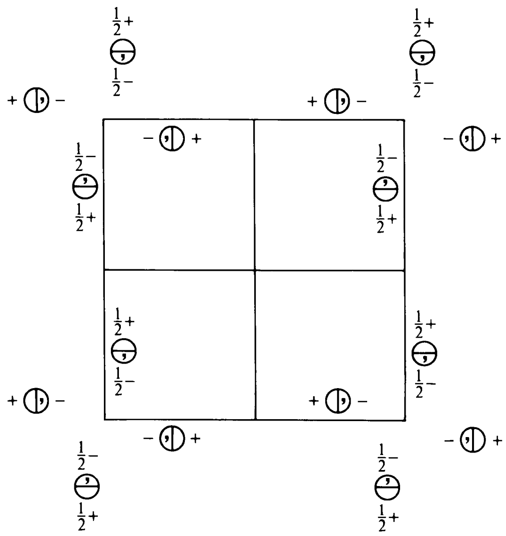
Tetragonal $4/m$ C_{4h}^2 $P4_2/m$

Patterson symmetry $P4/m$ $P4_2/m$ No. 84





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

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

Symmetry operations

(1) 1	(2) 2 $0,0,z$	(3) $4^+(0,0,\frac{1}{2})$ $0,0,z$	(4) $4^-(0,0,\frac{1}{2})$ $0,0,z$
(5) $\bar{1}$ $0,0,0$	(6) m $x,y,0$	(7) $\bar{4}^+$ $0,0,z$; $0,0,\frac{1}{4}$	(8) $\bar{4}^-$ $0,0,z$; $0,0,\frac{1}{4}$

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

Positions

Multiplicity, Wyckoff letter, Site symmetry			Coordinates				Reflection conditions
							General:
8	k	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) $\bar{y},x,\bar{z}+\frac{1}{2}$	$00l$: $l=2n$
							Special: as above, plus
4	j	$m..$	$x,y,0$	$\bar{x},\bar{y},0$	$\bar{y},x,\frac{1}{2}$	$y,\bar{x},\frac{1}{2}$	no extra conditions
4	i	$2..$	$0,\frac{1}{2},z$	$\frac{1}{2},0,z+\frac{1}{2}$	$0,\frac{1}{2},\bar{z}$	$\frac{1}{2},0,\bar{z}+\frac{1}{2}$	hkl: $h+k+l=2n$
4	h	$2..$	$\frac{1}{2},\frac{1}{2},z$	$\frac{1}{2},\frac{1}{2},z+\frac{1}{2}$	$\frac{1}{2},\frac{1}{2},\bar{z}$	$\frac{1}{2},\frac{1}{2},\bar{z}+\frac{1}{2}$	hkl: $l=2n$
4	g	$2..$	$0,0,z$	$0,0,z+\frac{1}{2}$	$0,0,\bar{z}$	$0,0,\bar{z}+\frac{1}{2}$	hkl: $l=2n$
2	f	$\bar{4}..$	$\frac{1}{2},\frac{1}{2},\frac{1}{4}$	$\frac{1}{2},\frac{1}{2},\frac{3}{4}$			hkl: $l=2n$
2	e	$\bar{4}..$	$0,0,\frac{1}{4}$	$0,0,\frac{3}{4}$			hkl: $l=2n$
2	d	$2/m..$	$0,\frac{1}{2},\frac{1}{2}$	$\frac{1}{2},0,0$			hkl: $h+k+l=2n$
2	c	$2/m..$	$0,\frac{1}{2},0$	$\frac{1}{2},0,\frac{1}{2}$			hkl: $h+k+l=2n$
2	b	$2/m..$	$\frac{1}{2},\frac{1}{2},0$	$\frac{1}{2},\frac{1}{2},\frac{1}{2}$			hkl: $l=2n$
2	a	$2/m..$	$0,0,0$	$0,0,\frac{1}{2}$			hkl: $l=2n$

Symmetry of special projections

Along [001] $p4$
$\mathbf{a}'=\mathbf{a}$ $\mathbf{b}'=\mathbf{b}$
Origin at $0,0,z$

Along [100] $p2mm$
$\mathbf{a}'=\mathbf{b}$ $\mathbf{b}'=\mathbf{c}$
Origin at $x,0,0$

Along [110] $p2mm$
$\mathbf{a}'=\frac{1}{2}(-\mathbf{a}+\mathbf{b})$ $\mathbf{b}'=\mathbf{c}$
Origin at $x,x,0$