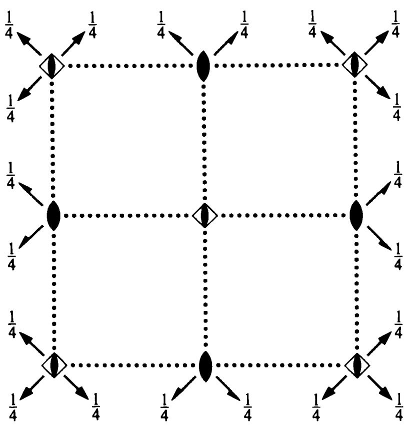
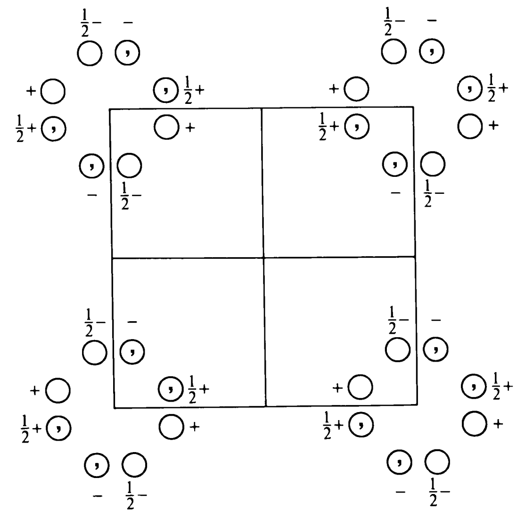
$P\bar{4}c2$ D_{2d}^{6} $\bar{4}m2$ Tetragonal

No. 116 $P\bar{4}c2$ Patterson symmetry $P4/mmm$





Origin at $\bar{4}c1$

Asymmetric unit $0 \le x \le \frac{1}{2}$; $0 \le y \le 1$; $0 \le z \le \frac{1}{4}$

Symmetry operations

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

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	*j*	1	(1) x,y,z	(2) $\bar{x},\bar{y},z$	(3) $y,\bar{x},\bar{z}$	(4) $\bar{y},x,\bar{z}$	$0kl$: $l=2n$
			(5) $x,\bar{y},z+\frac{1}{2}$	(6) $\bar{x},y,z+\frac{1}{2}$	(7) $y,x,\bar{z}+\frac{1}{2}$	(8) $\bar{y},\bar{x},\bar{z}+\frac{1}{2}$	$00l$: $l=2n$
							Special: as above, plus
4	*i*	2 . .	$0,\frac{1}{2},z$	$\frac{1}{2},0,\bar{z}$	$0,\frac{1}{2},z+\frac{1}{2}$	$\frac{1}{2},0,\bar{z}+\frac{1}{2}$	hkl: $l=2n$; $hk0$: $h+k=2n$
4	*h*	2 . .	$\frac{1}{2},\frac{1}{2},z$	$\frac{1}{2},\frac{1}{2},\bar{z}$	$\frac{1}{2},\frac{1}{2},z+\frac{1}{2}$	$\frac{1}{2},\frac{1}{2},\bar{z}+\frac{1}{2}$	hkl: $l=2n$
4	*g*	2 . .	$0,0,z$	$0,0,\bar{z}$	$0,0,z+\frac{1}{2}$	$0,0,\bar{z}+\frac{1}{2}$	hkl: $l=2n$
4	*f*	. . 2	$x,x,\frac{3}{4}$	$\bar{x},\bar{x},\frac{3}{4}$	$x,\bar{x},\frac{1}{4}$	$\bar{x},x,\frac{1}{4}$	no extra conditions
4	*e*	. . 2	$x,x,\frac{1}{4}$	$\bar{x},\bar{x},\frac{1}{4}$	$x,\bar{x},\frac{3}{4}$	$\bar{x},x,\frac{3}{4}$	no extra conditions
2	*d*	$\bar{4}$ . .	$\frac{1}{2},\frac{1}{2},0$	$\frac{1}{2},\frac{1}{2},\frac{1}{2}$			hkl: $l=2n$
2	*c*	$\bar{4}$ . .	$0,0,0$	$0,0,\frac{1}{2}$			hkl: $l=2n$
2	*b*	2 . 22	$\frac{1}{2},\frac{1}{2},\frac{1}{4}$	$\frac{1}{2},\frac{1}{2},\frac{3}{4}$			hkl: $l=2n$
2	*a*	2 . 22	$0,0,\frac{1}{4}$	$0,0,\frac{3}{4}$			hkl: $l=2n$

Symmetry of special projections

Along [001] $p4mm$
$\mathbf{a}'=\mathbf{a}$ $\mathbf{b}'=\mathbf{b}$
Origin at $0,0,z$

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

Along [110] $p2mm$
$\mathbf{a}'=\frac{1}{2}(-\mathbf{a}+\mathbf{b})$ $\mathbf{b}'=\mathbf{c}$
Origin at $x,x,\frac{1}{4}$

