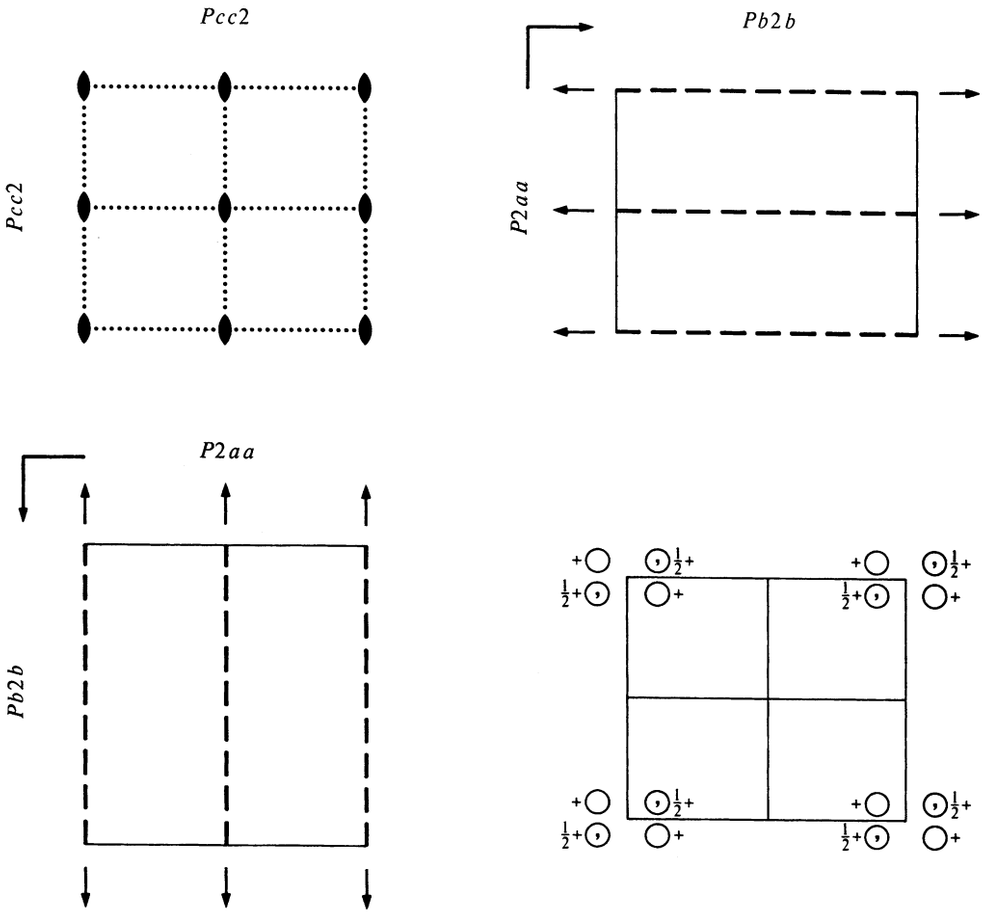
$Pcc2$ C_{2v}^3 $mm2$ Orthorhombic

No. 27 $Pcc2$ Patterson symmetry $Pmmm$



Origin on $cc2$

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

Symmetry operations

(1) 1 (2) 2 $0,0,z$ (3) c $x,0,z$ (4) c $0,y,z$

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

Positions

Multiplicity, Wyckoff letter, Site symmetry			Coordinates				Reflection conditions
							General:
4	e	1	(1) x,y,z	(2) $\bar{x},\bar{y},z$	(3) $x,\bar{y},z+\frac{1}{2}$	(4) $\bar{x},y,z+\frac{1}{2}$	$0kl$: $l=2n$ $h0l$: $l=2n$ $00l$: $l=2n$
							Special: as above, plus
2	d	. . 2	$\frac{1}{2},\frac{1}{2},z$	$\frac{1}{2},\frac{1}{2},z+\frac{1}{2}$			hkl : $l=2n$
2	c	. . 2	$\frac{1}{2},0,z$	$\frac{1}{2},0,z+\frac{1}{2}$			hkl : $l=2n$
2	b	. . 2	$0,\frac{1}{2},z$	$0,\frac{1}{2},z+\frac{1}{2}$			hkl : $l=2n$
2	a	. . 2	$0,0,z$	$0,0,z+\frac{1}{2}$			hkl : $l=2n$

Symmetry of special projections

Along [001] $p2mm$
$\mathbf{a}'=\mathbf{a}$ $\mathbf{b}'=\mathbf{b}$
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 [010] $p11m$
$\mathbf{a}'=\frac{1}{2}\mathbf{c}$ $\mathbf{b}'=\mathbf{a}$
Origin at $0,y,0$

Maximal non-isomorphic subgroups

I [2] $P1c1$ (Pc, 7) 1; 3
[2] $Pc11$ (Pc, 7) 1; 4
[2] $P112$ ($P2$, 3) 1; 2

IIa none

IIb [2] $Pcn2$ ($\mathbf{a}'=2\mathbf{a}$) ($Pnc2$, 30); [2] $Pnc2$ ($\mathbf{b}'=2\mathbf{b}$) (30); [2] $Ccc2$ ($\mathbf{a}'=2\mathbf{a},\mathbf{b}'=2\mathbf{b}$) (37)

Maximal isomorphic subgroups of lowest index

IIc [2] $Pcc2$ ($\mathbf{a}'=2\mathbf{a}$ or $\mathbf{b}'=2\mathbf{b}$) (27); [3] $Pcc2$ ($\mathbf{c}'=3\mathbf{c}$) (27)

Minimal non-isomorphic supergroups

I [2] $Pccm$ (49); [2] $Pcca$ (54); [2] $Pccn$ (56); [2] $P4_2cm$ (101); [2] $P4cc$ (103); [2] $P\bar{4}c2$ (116)

II [2] $Ccc2$ (37); [2] $Aem2$ (39); [2] $Bme2$ ($Aem2$, 39); [2] $Iba2$ (45); [2] $Pmm2$ ($\mathbf{c}'=\frac{1}{2}\mathbf{c}$) (25)