

$P\bar{4}2c$

No. 112

 $P\bar{4}2c$ D_{2d}^2 Generators selected (1); $t(1,0,0)$; $t(0,1,0)$; $t(0,0,1)$; (2); (3); (5)

General position

Multiplicity,
Wyckoff letter,
Site symmetry

Coordinates

8	n	1	(1) x, y, z	(2) \bar{x}, \bar{y}, z	(3) y, \bar{x}, \bar{z}	(4) \bar{y}, x, \bar{z}
			(5) $\bar{x}, y, \bar{z} + \frac{1}{2}$	(6) $x, \bar{y}, \bar{z} + \frac{1}{2}$	(7) $\bar{y}, \bar{x}, z + \frac{1}{2}$	(8) $y, x, z + \frac{1}{2}$

I Maximal *translationengleiche* subgroups

[2] $P\bar{4}11$ (81, $P\bar{4}$)	1; 2; 3; 4		
[2] $P21c$ (37, $Ccc2$)	1; 2; 7; 8	$\mathbf{a} - \mathbf{b}, \mathbf{a} + \mathbf{b}, \mathbf{c}$	
[2] $P221$ (16, $P222$)	1; 2; 5; 6		0, 0, 1/4

II Maximal *klassengleiche* subgroups

• Enlarged unit cell

[2] $\mathbf{a}' = 2\mathbf{a}, \mathbf{b}' = 2\mathbf{b}$			
$C\bar{4}2d$ (118, $P\bar{4}n2$)	$\langle 2; 3; 5 + (1, 0, 0) \rangle$	$\mathbf{a} - \mathbf{b}, \mathbf{a} + \mathbf{b}, \mathbf{c}$	
$C\bar{4}2d$ (118, $P\bar{4}n2$)	$\langle 2; 5; 3 + (1, 0, 0) \rangle$	$\mathbf{a} - \mathbf{b}, \mathbf{a} + \mathbf{b}, \mathbf{c}$	1/2, 1/2, 0
$C\bar{4}2c$ (116, $P\bar{4}c2$)	$\langle 2; 3; 5 \rangle$	$\mathbf{a} - \mathbf{b}, \mathbf{a} + \mathbf{b}, \mathbf{c}$	
$C\bar{4}2c$ (116, $P\bar{4}c2$)	$\langle 2; (3; 5) + (1, 0, 0) \rangle$	$\mathbf{a} - \mathbf{b}, \mathbf{a} + \mathbf{b}, \mathbf{c}$	1/2, 1/2, 0
[3] $\mathbf{c}' = 3\mathbf{c}$			
$P\bar{4}2c$ (112)	$\langle 2; 3; 5 + (0, 0, 1) \rangle$	$\mathbf{a}, \mathbf{b}, 3\mathbf{c}$	
$P\bar{4}2c$ (112)	$\langle 2; 3 + (0, 0, 2); 5 + (0, 0, 3) \rangle$	$\mathbf{a}, \mathbf{b}, 3\mathbf{c}$	0, 0, 1
$P\bar{4}2c$ (112)	$\langle 2; 3 + (0, 0, 4); 5 + (0, 0, 5) \rangle$	$\mathbf{a}, \mathbf{b}, 3\mathbf{c}$	0, 0, 2

• Series of maximal isomorphic subgroups

[p] $\mathbf{c}' = p\mathbf{c}$			
$P\bar{4}2c$ (112)	$\langle 2; 3 + (0, 0, 2u); 5 + (0, 0, \frac{p}{2} - \frac{1}{2} + 2u) \rangle$ prime $p > 2$; $0 \leq u < p$ p conjugate subgroups	$\mathbf{a}, \mathbf{b}, p\mathbf{c}$	0, 0, u
[p^2] $\mathbf{a}' = p\mathbf{a}, \mathbf{b}' = p\mathbf{b}$			
$P\bar{4}2c$ (112)	$\langle 2 + (2u, 2v, 0); 3 + (u - v, u + v, 0); 5 + (2u, 0, 0) \rangle$ prime $p > 2$; $0 \leq u < p$; $0 \leq v < p$ p^2 conjugate subgroups	$p\mathbf{a}, p\mathbf{b}, \mathbf{c}$	$u, v, 0$

I Minimal *translationengleiche* supergroups[2] $P4/mcc$ (124); [2] $P4/nnc$ (126); [2] $P4_2/mmc$ (131); [2] $P4_2/nbc$ (133); [3] $P\bar{4}3n$ (218)II Minimal non-isomorphic *klassengleiche* supergroups

• Additional centring translations

[2] $C\bar{4}2c$ (116, $P\bar{4}c2$); [2] $I\bar{4}2m$ (121)

• Decreased unit cell

[2] $\mathbf{c}' = \frac{1}{2}\mathbf{c}$ $P\bar{4}2m$ (111)