

D_{2d}^1
 $P\bar{4}2m$

No. 111

 $P\bar{4}2m$
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	<i>o</i>	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}	(6) x, \bar{y}, \bar{z}	(7) \bar{y}, \bar{x}, z	(8) y, x, z

I Maximal translationengleiche subgroups

[2] $P\bar{4}11$ (81, $P\bar{4}$)	1; 2; 3; 4	
[2] $P21m$ (35, $Cmm2$)	1; 2; 7; 8	$\mathbf{a} - \mathbf{b}, \mathbf{a} + \mathbf{b}, \mathbf{c}$
[2] $P221$ (16, $P222$)	1; 2; 5; 6	

II Maximal klassengleiche subgroups

• Enlarged unit cell

[2] $\mathbf{c}' = 2\mathbf{c}$			
$P\bar{4}2c$ (112)	$\langle 2; 3; 5 + (0,0,1) \rangle$	$\mathbf{a}, \mathbf{b}, 2\mathbf{c}$	
$P\bar{4}2c$ (112)	$\langle 2; 5; 3 + (0,0,1) \rangle$	$\mathbf{a}, \mathbf{b}, 2\mathbf{c}$	0,0,1/2
$P\bar{4}2m$ (111)	$\langle 2; 3; 5 \rangle$	$\mathbf{a}, \mathbf{b}, 2\mathbf{c}$	
$P\bar{4}2m$ (111)	$\langle 2; (3; 5) + (0,0,1) \rangle$	$\mathbf{a}, \mathbf{b}, 2\mathbf{c}$	0,0,1/2
[2] $\mathbf{a}' = 2\mathbf{a}, \mathbf{b}' = 2\mathbf{b}$			
$C\bar{4}2d$ (117, $P\bar{4}b2$)	$\langle 2; 3; 5 + (1,0,0) \rangle$	$\mathbf{a} - \mathbf{b}, \mathbf{a} + \mathbf{b}, \mathbf{c}$	
$C\bar{4}2d$ (117, $P\bar{4}b2$)	$\langle 2; 5; 3 + (1,0,0) \rangle$	$\mathbf{a} - \mathbf{b}, \mathbf{a} + \mathbf{b}, \mathbf{c}$	1/2,1/2,0
$C\bar{4}2m$ (115, $P\bar{4}m2$)	$\langle 2; 3; 5 \rangle$	$\mathbf{a} - \mathbf{b}, \mathbf{a} + \mathbf{b}, \mathbf{c}$	
$C\bar{4}2m$ (115, $P\bar{4}m2$)	$\langle 2; (3; 5) + (1,0,0) \rangle$	$\mathbf{a} - \mathbf{b}, \mathbf{a} + \mathbf{b}, \mathbf{c}$	1/2,1/2,0
[2] $\mathbf{a}' = 2\mathbf{a}, \mathbf{b}' = 2\mathbf{b}, \mathbf{c}' = 2\mathbf{c}$			
$F\bar{4}2c$ (120, $I\bar{4}c2$)	$\langle 2; 3; 5 + (0,0,1) \rangle$	$\mathbf{a} - \mathbf{b}, \mathbf{a} + \mathbf{b}, 2\mathbf{c}$	
$F\bar{4}2c$ (120, $I\bar{4}c2$)	$\langle 2; 5; 3 + (0,0,1) \rangle$	$\mathbf{a} - \mathbf{b}, \mathbf{a} + \mathbf{b}, 2\mathbf{c}$	0,0,1/2
$F\bar{4}2m$ (119, $I\bar{4}m2$)	$\langle 2; 3; 5 \rangle$	$\mathbf{a} - \mathbf{b}, \mathbf{a} + \mathbf{b}, 2\mathbf{c}$	
$F\bar{4}2m$ (119, $I\bar{4}m2$)	$\langle 2; (3; 5) + (0,0,1) \rangle$	$\mathbf{a} - \mathbf{b}, \mathbf{a} + \mathbf{b}, 2\mathbf{c}$	0,0,1/2
[3] $\mathbf{c}' = 3\mathbf{c}$			
$P\bar{4}2m$ (111)	$\langle 2; 3; 5 \rangle$	$\mathbf{a}, \mathbf{b}, 3\mathbf{c}$	
$P\bar{4}2m$ (111)	$\langle 2; (3; 5) + (0,0,2) \rangle$	$\mathbf{a}, \mathbf{b}, 3\mathbf{c}$	0,0,1
$P\bar{4}2m$ (111)	$\langle 2; (3; 5) + (0,0,4) \rangle$	$\mathbf{a}, \mathbf{b}, 3\mathbf{c}$	0,0,2

• Series of maximal isomorphic subgroups

[p] $\mathbf{c}' = p\mathbf{c}$			
$P\bar{4}2m$ (111)	$\langle 2; (3; 5) + (0,0,2u) \rangle$ prime $p > 2$; $0 \leq u < p$ p conjugate subgroups	$\mathbf{a}, \mathbf{b}, p\mathbf{c}$	0,0, u
[p^2] $\mathbf{a}' = p\mathbf{a}, \mathbf{b}' = p\mathbf{b}$			
$P\bar{4}2m$ (111)	$\langle 2 + (2u, 2v, 0); 3 + (u - v, u + v, 0); 5 + (2u, 0, 0) \rangle$ 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] $P4/mmm$ (123); [2] $P4/nbm$ (125); [2] $P4_2/mcm$ (132); [2] $P4_2/nm$ (134); [3] $P\bar{4}3m$ (215)

II Minimal non-isomorphic klassengleiche supergroups

• Additional centring translations

 [2] $C\bar{4}2m$ (115, $P\bar{4}m2$); [2] $I\bar{4}2m$ (121)

• Decreased unit cell

none