

Laue class $O_h - m\bar{3}m$

6. SCANNING TABLES

Cubic

 No. 218 $P\bar{4}3n$
 $\mathcal{G} = P\bar{4}3n$
 T_d^4

Orientation orbit (<i>hkl</i>)	Conventional basis of the scanning group			Scanning group \mathcal{H}	Linear orbit <i>sd</i>	Sectional layer group $\mathcal{L}(sd)$	
	<i>a'</i>	<i>b'</i>	<i>d</i>				
(001)	a	b	c	$P\bar{4}2c$	$[0\mathbf{d}, \frac{1}{2}\mathbf{d}]$	$p222$	L19
(100)	b	c	a	$[(\mathbf{a}'/2 + \mathbf{d}/4)$	$[\frac{1}{4}\mathbf{d}, \frac{3}{4}\mathbf{d}]$	$p\bar{4} (\mathbf{a}'/2 \text{ or } \mathbf{b}'/2)$	L50
(010)	c	a	b	or $(\mathbf{b}'/2 + \mathbf{d}/4)]$	$[\pm s\mathbf{d}, (\pm s + \frac{1}{2})\mathbf{d}]$	$p112$	L03
(110)	c	a - b	a + b	$A2aa$	$[0\mathbf{d}, \frac{1}{2}\mathbf{d}]$	$p2an$	L34
(1 $\bar{1}$ 0)	c	a + b	b - a	$[(\mathbf{b}' + \mathbf{d})/4]$	$[\frac{1}{4}\mathbf{d}, \frac{3}{4}\mathbf{d}]$	$p2aa (\mathbf{b}'/4)$	L30
(011)	a	b - c	b + c		$[\pm s\mathbf{d}, (\pm s + \frac{1}{2})\mathbf{d}]$	$p1a1 (\mathbf{b}'/4)$	L05
(01 $\bar{1}$)	a	b + c	c - b				
(101)	b	c - a	c + a				
($\bar{1}$ 01)	b	c + a	a - c				
(111)	a - b	b - c	τ	$R3c$	$[s\mathbf{d}, (s + \frac{1}{6})\mathbf{d},$		
($\bar{1}\bar{1}$ 1)	b - a	-b - c	τ_3		$(s + \frac{1}{3})\mathbf{d}, (s + \frac{1}{2})\mathbf{d},$		
($\bar{1}\bar{1}\bar{1}$)	a + b	c - b	τ_1		$(s + \frac{2}{3})\mathbf{d}, (s + \frac{5}{6})\mathbf{d}]$	$p3$	L65
($\bar{1}\bar{1}\bar{1}$)	-a - b	b + c	τ_2				

 No. 219 $F\bar{4}3c$
 $\mathcal{G} = F\bar{4}3c$
 T_d^5

Orientation orbit (<i>hkl</i>)	Conventional basis of the scanning group			Scanning group \mathcal{H}	Linear orbit <i>sd</i>	Sectional layer group $\mathcal{L}(sd)$	
	<i>a'</i>	<i>b'</i>	<i>d</i>				
(001)	$(\mathbf{a} - \mathbf{b})/2$	$(\mathbf{a} + \mathbf{b})/2$	c	$\bar{I}4c2$	$[0\mathbf{d}, \frac{1}{2}\mathbf{d}]$	$p\bar{4}b2 (\mathbf{a}'/2 \text{ or } \mathbf{b}'/2)$	L60
(100)	$(\mathbf{b} - \mathbf{c})/2$	$(\mathbf{b} + \mathbf{c})/2$	a	$(\mathbf{d}/4)$	$[\frac{1}{4}\mathbf{d}, \frac{3}{4}\mathbf{d}]$	$p\bar{4}b2$	L60
(010)	$(\mathbf{c} - \mathbf{a})/2$	$(\mathbf{c} + \mathbf{a})/2$	b		$[\pm s\mathbf{d}, (\pm s + \frac{1}{2})\mathbf{d}]$	$pba2$	L25
(110)	c	$(\mathbf{a} - \mathbf{b})/2$	$(\mathbf{a} + \mathbf{b})/2$	$I2cb$	$[0\mathbf{d}, \frac{1}{2}\mathbf{d}]$	$p2aa$	L30
(1 $\bar{1}$ 0)	c	$(\mathbf{a} + \mathbf{b})/2$	$(\mathbf{b} - \mathbf{a})/2$		$[\frac{1}{4}\mathbf{d}, \frac{3}{4}\mathbf{d}]$	$p2_{1ab} (\mathbf{b}'/4)$	L33
(011)	a	$(\mathbf{b} - \mathbf{c})/2$	$(\mathbf{b} + \mathbf{c})/2$		$[\pm s\mathbf{d}, (\pm s + \frac{1}{2})\mathbf{d}]$	$p1a1$	L12
(01 $\bar{1}$)	a	$(\mathbf{b} + \mathbf{c})/2$	$(\mathbf{c} - \mathbf{b})/2$				
(101)	b	$(\mathbf{c} - \mathbf{a})/2$	$(\mathbf{c} + \mathbf{a})/2$				
($\bar{1}$ 01)	b	$(\mathbf{c} + \mathbf{a})/2$	$(\mathbf{a} - \mathbf{c})/2$				
(111)	$(\mathbf{a} - \mathbf{c})/2$	$(\mathbf{b} - \mathbf{a})/2$	τ	$R3c$	$[s\mathbf{d}, (s + \frac{1}{6})\mathbf{d},$		
($\bar{1}\bar{1}$ 1)	$(-\mathbf{a} - \mathbf{c})/2$	$(\mathbf{a} - \mathbf{b})/2$	τ_3		$(s + \frac{1}{3})\mathbf{d}, (s + \frac{1}{2})\mathbf{d},$		
($\bar{1}\bar{1}\bar{1}$)	$(\mathbf{a} + \mathbf{c})/2$	$(-\mathbf{a} - \mathbf{b})/2$	τ_1		$(s + \frac{2}{3})\mathbf{d}, (s + \frac{5}{6})\mathbf{d}]$	$p3$	L65
($\bar{1}\bar{1}\bar{1}$)	$(\mathbf{c} - \mathbf{a})/2$	$(\mathbf{a} + \mathbf{b})/2$	τ_2				

Centring type F

Orientation orbit (hkl)	Conventional basis of the scanning group			Auxiliary basis of the scanning group		
	a'	b'	d	\hat{a}	\hat{b}	\hat{c}
($hk0$)	c	$n\hat{a} - m\hat{b}$	$p\hat{a} + q\hat{b}$	$(a - b)/2$	$(a + b)/2$	c
($\bar{h}k0$)	c	$n\hat{a} + m\hat{b}$	$-p\hat{a} + q\hat{b}$			
($k\bar{h}0$)	c	$m\hat{a} + n\hat{b}$	$q\hat{a} + p\hat{b}$			
($\bar{k}\bar{h}0$)	c	$m\hat{a} - n\hat{b}$	$-q\hat{a} + p\hat{b}$			
($0hk$)	a	$n\hat{a} - m\hat{b}$	$p\hat{a} + q\hat{b}$	$(b - c)/2$	$(b + c)/2$	a
($0\bar{h}k$)	a	$n\hat{a} + m\hat{b}$	$-p\hat{a} + q\hat{b}$			
($0k\bar{h}$)	a	$m\hat{a} - n\hat{b}$	$q\hat{a} + p\hat{b}$			
($0\bar{k}\bar{h}$)	a	$m\hat{a} + n\hat{b}$	$-q\hat{a} + p\hat{b}$			
($k0\bar{h}$)	b	$n\hat{a} - m\hat{b}$	$p\hat{a} + q\hat{b}$	$(c - a)/2$	$(c + a)/2$	b
($k0\bar{h}$)	b	$n\hat{a} + m\hat{b}$	$-p\hat{a} + q\hat{b}$			
($h0k$)	b	$m\hat{a} - n\hat{b}$	$q\hat{a} + p\hat{b}$			
($h0\bar{k}$)	b	$m\hat{a} + n\hat{b}$	$-q\hat{a} + p\hat{b}$			
h even, k odd or h odd, k even $\Rightarrow n = h + k, m = h - k$						
h, k odd $\Rightarrow n = (h + k)/2, m = (h - k)/2$						
(hhl)	$(a - b)/2$	$n\hat{a} - m\hat{c}$	$p\hat{a} + q\hat{c}$	$(a + b)/2$	c	$(a - b)/2$
($\bar{h}hl$)	$(a - b)/2$	$n\hat{a} + m\hat{c}$	$-p\hat{a} + q\hat{c}$			
($h\bar{h}l$)	$(a + b)/2$	$n\hat{a} - m\hat{c}$	$p\hat{a} + q\hat{c}$	$(b - a)/2$	c	$(a + b)/2$
($\bar{h}\bar{h}l$)	$(a + b)/2$	$n\hat{a} + m\hat{c}$	$-p\hat{a} + q\hat{c}$			
(lhh)	$(b - c)/2$	$n\hat{a} - m\hat{a}$	$p\hat{a} + q\hat{a}$	$(b + c)/2$	a	$(b - c)/2$
($\bar{l}h\bar{h}$)	$(b - c)/2$	$n\hat{a} + m\hat{a}$	$-p\hat{a} + q\hat{a}$			
($l\bar{h}\bar{h}$)	$(b + c)/2$	$n\hat{a} - m\hat{a}$	$p\hat{a} + q\hat{a}$	$(c - b)/2$	a	$(b + c)/2$
($\bar{l}h\bar{h}$)	$(b + c)/2$	$n\hat{a} + m\hat{a}$	$-p\hat{a} + q\hat{a}$			
($h\bar{l}h$)	$(c - a)/2$	$n\hat{a} - m\hat{b}$	$p\hat{a} + q\hat{b}$	$(c + a)/2$	b	$(c - a)/2$
($\bar{h}l\bar{h}$)	$(c - a)/2$	$n\hat{a} + m\hat{b}$	$-p\hat{a} + q\hat{b}$			
($h\bar{l}h$)	$(c + a)/2$	$n\hat{a} - m\hat{b}$	$p\hat{a} + q\hat{b}$	$(a - c)/2$	b	$(c + a)/2$
($h\bar{l}\bar{h}$)	$(c + a)/2$	$n\hat{a} + m\hat{b}$	$-p\hat{a} + q\hat{b}$			
h odd $\Rightarrow m = h, n = 2l$; h even $\Rightarrow m = h/2, n = l$						

Arithmetic classes $432F$ and $\bar{4}3mF$

Serial No.	209	210	216	219
Group type	O^3	O^4	T_d^2	T_d^5
Group	$F432$	$F4_132$	$F\bar{4}3m$	$F\bar{4}3c$
$(hk0)$	$I112$	$I112$	$I112$	$I112$
$(\bar{h}k0)$				
$(kh0)$				
$(\bar{k}h0)$				
$(0hk)$				
$(0\bar{h}k)$				
$(0kh)$				
$(0\bar{k}h)$				
$(k0h)$				
$(k0\bar{h})$				
$(h0k)$				
$(h0\bar{k})$				
(hhl)	$I112$	$I112$	$I11m$	$I11a$
$(\bar{h}\bar{h}l)$		$(\mathbf{a}/4 + \mathbf{c}/8)$		
$(h\bar{h}l)$		$I112$		$I11b$
$(\bar{h}hl)$		$(\mathbf{a}/4 + 3\mathbf{c}/8)$		
(lhh)		$I112$		$I11a$
$(\bar{l}\bar{h}\bar{h})$		$(\mathbf{b}/4 + \mathbf{a}/8)$		
$(l\bar{h}\bar{h})$		$I112$		$I11b$
$(\bar{l}h\bar{h})$		$(\mathbf{b}/4 + 3\mathbf{a}/8)$		
(hlh)		$I112$		$I11a$
$(\bar{h}l\bar{h})$		$(\mathbf{c}/4 + \mathbf{b}/8)$		
$(\bar{h}lh)$		$I112$		$I11b$
$(hl\bar{h})$		$(\mathbf{c}/4 + 3\mathbf{b}/8)$		