International Tables for Crystallography (2006). Vol. C, Table 9.8.3.5, pp. 922–934.

Table 9.8.3.5. (3 + 1)-*Dimensional superspace groups*

The number labelling the superspace group is denoted by *n.m*, where *n* is the number attached to the three-dimensional basic space group and *m* numbers the various superspace groups having the same basic space group. The symbol of the basic space group, the symbol for the four-dimensional point group K_s, the number of the four-dimensional Bravais class to which the superspace group belongs (Table 9.8.3.2*a*), and the superspace-group symbol are also given. The superspace-group symbol is indicated in the short notation, *i.e.* for the basic group one uses the short symbol from *International Tables for Crystallography*, Volume A, and then the values of τ are given for each of the generators in this symbol, unless all these values are zero. Then, instead of writing a number of zeros, one omits them all. Finally, the special reflection conditions due to non-primitive translations are given, for *hklm* if $\mathbf{q}^r = 0$ and for *HKLm* otherwise. Recall the *HKLm* are the indices with respect to a conventional basis $\mathbf{a}_c^*, \mathbf{b}_c^*, \mathbf{c}_c^*, \mathbf{q}^i$ as in Table 9.8.3.2(*a*). The reflection conditions due to centring translations are given in Table 9.8.3.6.

No.	Basic space group	Point group K_s	Bravais class No.	Group symbol	Special reflection conditions
1.1	$P1$	$(1, 1)$	1	$P1(\alpha\beta\gamma)$	
2.1	$P\bar{1}$	$(\bar{1}, \bar{1})$	1	$P\bar{1}(\alpha\beta\gamma)$	
3.1	$P2$	$(2, \bar{1})$	2	$P2(\alpha\beta0)$	
3.2		$(2, \bar{1})$	3	$P2(\alpha\beta\frac{1}{2})$	
3.3		$(2, 1)$	5	$P2(00\gamma)$	
3.4		$(2, 1)$	5	$P2(00\gamma)s$	$00lm$: $m=2n$
3.5		$(2, 1)$	6	$P2(\frac{1}{2}0\gamma)$	
4.1	$P2_1$	$(2, \bar{1})$	2	$P2_1(\alpha\beta0)$	$00l0$: $l=2n$
4.2		$(2, 1)$	5	$P2_1(00\gamma)$	$00lm$: $l=2n$
4.3		$(2, 1)$	6	$P2_1(\frac{1}{2}0\gamma)$	$00Lm$: $L=2n$
5.1	$B2$	$(2, \bar{1})$	4	$B2(\alpha\beta0)$	
5.2		$(2, 1)$	7	$B2(00\gamma)$	
5.3		$(2, 1)$	7	$B2(00\gamma)s$	$00lm$: $m=2n$
5.4		$(2, 1)$	8	$B2(0\frac{1}{2}\gamma)$	
6.1	Pm	$(m, 1)$	2	$Pm(\alpha\beta0)$	
6.2		$(m, 1)$	2	$Pm(\alpha\beta0)s$	$hk0m$: $m=2n$
6.3		$(m, 1)$	3	$Pm(\alpha\beta\frac{1}{2})$	
6.4		$(m, \bar{1})$	5	$Pm(00\gamma)$	
6.5		$(m, \bar{1})$	6	$Pm(\frac{1}{2}0\gamma)$	
7.1	Pb	$(m, 1)$	2	$Pb(\alpha\beta0)$	$hk0m$: $k=2n$
7.2		$(m, 1)$	3	$Pb(\alpha\beta\frac{1}{2})$	$HK0m$: $K=2n$
7.3		$(m, \bar{1})$	5	$Pb(00\gamma)$	$hk00$: $k=2n$
7.4		$(m, \bar{1})$	6	$Pb(\frac{1}{2}0\gamma)$	$HK00$: $K=2n$
8.1	Bm	$(m, 1)$	4	$Bm(\alpha\beta0)$	
8.2		$(m, 1)$	4	$Bm(\alpha\beta0)s$	$hk0m$: $m=2n$
8.3		$(m, \bar{1})$	7	$Bm(00\gamma)$	
8.4		$(m, \bar{1})$	8	$Bm(0\frac{1}{2}\gamma)$	
9.1	Bb	$(m, 1)$	4	$Bb(\alpha\beta0)$	$hk0m$: $k=2n$
9.2		$(m, \bar{1})$	7	$Bb(00\gamma)$	$hk00$: $k=2n$
10.1	$P2/m$	$(2/m, \bar{1}1)$	2	$P2/m(\alpha\beta0)$	
10.2		$(2/m, \bar{1}1)$	2	$P2/m(\alpha\beta0)0s$	$hk0m$: $m=2n$
10.3		$(2/m, \bar{1}1)$	3	$P2/m(\alpha\beta\frac{1}{2})$	
10.4		$(2/m, 1\bar{1})$	5	$P2/m(00\gamma)$	
10.5		$(2/m, 1\bar{1})$	5	$P2/m(00\gamma)s0$	$00lm$: $m=2n$
10.6		$(2/m, 1\bar{1})$	6	$P2/m(\frac{1}{2}0\gamma)$	
11.1	$P2_1/m$	$(2/m, \bar{1}1)$	2	$P2_1/m(\alpha\beta0)$	$00l0$: $l=2n$
11.2		$(2/m, \bar{1}1)$	2	$P2_1/m(\alpha\beta0)0s$	$00l0$: $l=2n$; $hk0m$: $m=2n$
11.3		$(2/m, 1\bar{1})$	5	$P2_1/m(00\gamma)$	$00lm$: $l=2n$
11.4		$(2/m, 1\bar{1})$	6	$P2_1/m(\frac{1}{2}0\gamma)$	$00Lm$: $L=2n$
12.1	$B2/m$	$(2/m, \bar{1}1)$	4	$B2/m(\alpha\beta0)$	
12.2		$(2/m, \bar{1}1)$	4	$B2/m(\alpha\beta0)0s$	$hk0m$: $m=2n$
12.3		$(2/m, 1\bar{1})$	7	$B2/m(00\gamma)$	
12.4		$(2/m, 1\bar{1})$	7	$B2/m(00\gamma)s0$	$00lm$: $m=2n$
12.5		$(2/m, 1\bar{1})$	8	$B2/m(\frac{1}{2}0\gamma)$	
13.1	$P2/b$	$(2/m, \bar{1}1)$	2	$P2/b(\alpha\beta0)$	$hk0m$: $k=2n$
13.2		$(2/m, \bar{1}1)$	3	$P2/b(\alpha\beta\frac{1}{2})$	$HK0m$: $m=2n$
13.3		$(2/m, 1\bar{1})$	5	$P2/b(00\gamma)$	$hk00$: $k=2n$
13.4		$(2/m, 1\bar{1})$	5	$P2/b(00\gamma)s0$	$00lm$: $m=2n$; $hk00$: $k=2n$
13.5		$(2/m, 1\bar{1})$	6	$P2/b(\frac{1}{2}0\gamma)$	$HK00$: $K=2n$
14.1	$P2_1/b$	$(2/m, \bar{1}1)$	2	$P2_1/b(\alpha\beta0)$	$00l0$: $l=2n$; $hk0m$: $k=2n$
14.2		$(2/m, 1\bar{1})$	5	$P2_1/b(00\gamma)$	$00lm$: $l=2n$; $hk00$: $k=2n$
14.3		$(2/m, 1\bar{1})$	6	$P2_1/b(\frac{1}{2}0\gamma)$	$00Lm$: $L=2n$; $HK00$: $K=2n$
15.1	$B2/b$	$(2/m, \bar{1}1)$	4	$B2/b(\alpha\beta0)$	$hk0m$: $k=2n$
15.2		$(2/m, 1\bar{1})$	7	$B2/b(00\gamma)$	$hk00$: $k=2n$
15.3		$(2/m, 1\bar{1})$	7	$B2/b(00\gamma)s0$	$00lm$: $m=2n$; $hk00$: $k=2n$

Table 9.8.3.5. (3 + 1)-*Dimensional superspace groups (cont.)*

No.	Basic space group	Point group K_s	Bravais class No.	Group symbol	Special reflection conditions
16.1	$P222$	$(222, \bar{1}\bar{1}1)$	9	$P222(00\gamma)$	
16.2			9	$P222(00\gamma)00s$	$00lm$: $m=2n$
16.3			10	$P222(0\frac{1}{2}\gamma)$	
16.4			11	$P222(\frac{1}{2}\frac{1}{2}\gamma)$	
17.1	$P222_1$	$(222, \bar{1}\bar{1}1)$	9	$P222_1(00\gamma)$	$00lm$: $l=2n$
17.2			10	$P222_1(0\frac{1}{2}\gamma)$	$00Lm$: $L=2n$
17.3			11	$P222_1(\frac{1}{2}\frac{1}{2}\gamma)$	$00Lm$: $L=2n$
17.4			9	$P2_122(00\gamma)$	$h000$: $h=2n$
17.5			9	$P2_122(00\gamma)00s$	$h000$: $h=2n$; $00lm$: $m=2n$
17.6			10	$P2_122(0\frac{1}{2}\gamma)$	$H000$: $H=2n$
18.1	$P2_12_12$	$(222, \bar{1}\bar{1}1)$	9	$P2_12_12(00\gamma)$	$h000$: $h=2n$; $0k00$: $k=2n$
18.2			9	$P2_12_12(00\gamma)00s$	$h000$: $h=2n$; $0k00$: $k=2n$; $00lm$: $m=2n$
18.3			9	$P2_122_1(00\gamma)$	$h000$: $h=2n$; $00lm$: $l=2n$
18.4			10	$P2_122_1(0\frac{1}{2}\gamma)$	$H000$: $H=2n$; $00Lm$: $L=2n$
19.1	$P2_12_12_1$	$(222, \bar{1}\bar{1}1)$	9	$P2_12_12_1(00\gamma)$	$h000$: $h=2n$; $0k00$: $k=2n$; $00lm$: $l=2n$
20.1	$C222_1$	$(222, \bar{1}\bar{1}1)$	13	$C222_1(00\gamma)$	$00lm$: $l=2n$
20.2			14	$C222_1(10\gamma)$	$00Lm$: $L=2n$
20.3			15	$A2_122(00\gamma)$	$h000$: $h=2n$
20.4			15	$A2_122(00\gamma)00s$	$h000$: $h=2n$; $00lm$: $m=2n$
21.1	$C222$	$(222, \bar{1}\bar{1}1)$	13	$C222(00\gamma)$	
21.2			13	$C222(00\gamma)00s$	$00lm$: $m=2n$
21.3			14	$C222(10\gamma)$	
21.4			14	$C222(10\gamma)00s$	$00Lm$: $m=2n$
21.5			15	$A222(00\gamma)$	
21.6			15	$A222(00\gamma)00s$	$00lm$: $m=2n$
21.7			16	$A222(\frac{1}{2}0\gamma)$	
22.1	$F222$	$(222, \bar{1}\bar{1}1)$	17	$F222(00\gamma)$	
22.2			17	$F222(00\gamma)00s$	$00lm$: $m=2n$
22.3			18	$F222(10\gamma)$	
23.1	$I222$	$(222, \bar{1}\bar{1}1)$	12	$I222(00\gamma)$	
23.2			12	$I222(00\gamma)00s$	$00lm$: $m=2n$
24.1	$I2_12_12_1$	$(222, \bar{1}\bar{1}1)$	12	$I2_12_12_1(00\gamma)$	$h000$: $h=2n$; $0k00$: $k=2n$; $00lm$: $l=2n$
24.2			12	$I2_12_12_1(00\gamma)00s$	$h000$: $h=2n$; $0k00$: $k=2n$; $00lm$: $l+m=2n$
25.1	$Pmm2$	$(mm2, 111)$	9	$Pmm2(00\gamma)$	
25.2			9	$Pmm2(00\gamma)s0s$	$0klm$: $m=2n$
25.3			9	$Pmm2(00\gamma)ss0$	$0klm$: $m=2n$; $h0lm$: $m=2n$
25.4			10	$Pmm2(0\frac{1}{2}\gamma)$	
25.5			10	$Pmm2(0\frac{1}{2}\gamma)s0s$	$0KLm$: $m=2n$
25.6			11	$Pmm2(\frac{1}{2}\frac{1}{2}\gamma)$	
25.7		$(m2m, 1\bar{1}\bar{1})$	10	$Pm2m(0\frac{1}{2}\gamma)$	
25.8			10	$Pm2m(0\frac{1}{2}\gamma)s00$	$0KLm$: $m=2n$
25.9		$(2mm, \bar{1}1\bar{1})$	9	$P2mm(00\gamma)$	
25.10			9	$P2mm(00\gamma)0s0$	$h0lm$: $m=2n$
25.11			10	$P2mm(0\frac{1}{2}\gamma)$	
25.12			11	$P2mm(\frac{1}{2}\frac{1}{2}\gamma)$	
26.1	$Pmc2_1$	$(mm2, 111)$	9	$Pmc2_1(00\gamma)$	$h0lm$: $l=2n$
26.2			9	$Pmc2_1(00\gamma)s0s$	$0klm$: $m=2n$; $h0lm$: $l=2n$
26.3			10	$Pmc2_1(0\frac{1}{2}\gamma)$	$H0Lm$: $L=2n$
26.4			10	$Pmc2_1(0\frac{1}{2}\gamma)s0s$	$0KLm$: $m=2n$; $H0Lm$: $L=2n$
26.5			10	$Pcm2_1(0\frac{1}{2}\gamma)$	$0KLm$: $L=2n$
26.6			11	$Pmc2_1(\frac{1}{2}\frac{1}{2}\gamma)$	$H0Lm$: $L=2n$
26.7		$(2mm, \bar{1}1\bar{1})$	9	$P2_1am(00\gamma)$	$h0lm$: $h=2n$
26.8			9	$P2_1am(00\gamma)0s0$	$h0lm$: $h+m=2n$
26.9			9	$P2_1ma(00\gamma)$	$hk00$: $h=2n$
26.10			9	$P2_1ma(00\gamma)0s0$	$h0lm$: $m=2n$; $hk00$: $h=2n$
26.11			10	$P2_1am(0\frac{1}{2}\gamma)$	$H0Lm$: $H=2n$
26.12			10	$P2_1ma(0\frac{1}{2}\gamma)$	$HK00$: $H=2n$
27.1	$Pcc2$	$(mm2, 111)$	9	$Pcc2(00\gamma)$	$0klm$: $l=2n$; $h0lm$: $l=2n$
27.2			9	$Pcc2(00\gamma)s0s$	$0klm$: $l+m=2n$; $h0lm$: $l=2n$
27.3			10	$Pcc2(0\frac{1}{2}\gamma)$	$0KLm$: $L=2n$; $H0Lm$: $L=2n$
27.4			11	$Pcc2(\frac{1}{2}\frac{1}{2}\gamma)$	$0KLm$: $L=2n$; $H0Lm$: $L=2n$
27.5		$(2mm, \bar{1}1\bar{1})$	9	$P2aa(00\gamma)$	$h0lm$: $h=2n$; $hk00$: $h=2n$
27.6			9	$P2aa(00\gamma)0s0$	$h0lm$: $h+m=2n$; $hk00$: $h=2n$
27.7			10	$P2aa(0\frac{1}{2}\gamma)$	$H0Lm$: $H=2n$; $HK00$: $H=2n$
28.1	$Pma2$	$(mm2, 111)$	9	$Pma2(00\gamma)$	$h0lm$: $h=2n$
28.2			9	$Pma2(00\gamma)s0s$	$0klm$: $m=2n$; $h0lm$: $h=2n$

Table 9.8.3.5. (3 + 1)-*Dimensional superspace groups (cont.)*

No.	Basic space group	Point group K_s	Bravais class No.	Group symbol	Special reflection conditions
28.3			9	$Pma2(00\gamma)ss0$	$0klm$: $m=2n$; $h0lm$: $h+m=2n$
28.4			9	$Pma2(00\gamma)0ss$	$h0lm$: $h+m=2n$
28.5			10	$Pma2(0\frac{1}{2}\gamma)$	$H0Lm$: $H=2n$
28.6			10	$Pma2(0\frac{1}{2}\gamma)s0s$	$0KLm$: $m=2n$; $H0Lm$: $H=2n$
28.7		$(m2m, 1\bar{1}\bar{1})$	10	$Pm2a(0\frac{1}{2}\gamma)$	$HK00$: $H=2n$
28.8			10	$Pm2a(0\frac{1}{2}\gamma)s00$	$0KLm$: $m=2n$; $HK00$: $H=2n$
28.9			10	$Pc2m(0\frac{1}{2}\gamma)$	$0KLm$: $L=2n$
28.10		$(2mm, \bar{1}1\bar{1})$	9	$P2cm(00\gamma)$	$h0lm$: $l=2n$
28.11			9	$P2mb(00\gamma)$	$hk00$: $k=2n$
28.12			9	$P2mb(00\gamma)0s0$	$h0lm$: $m=2n$; $hk00$: $k=2n$
28.13			10	$P2cm(0\frac{1}{2}\gamma)$	$H0Lm$: $L=2n$
28.14			11	$P2cm(\frac{1}{2}\frac{1}{2}\gamma)$	$H0Lm$: $L=2n$
29.1	$Pca2_1$	$(mm2, 111)$	9	$Pca2_1(00\gamma)$	$0klm$: $l=2n$; $h0lm$: $h=2n$
29.2			9	$Pca2_1(00\gamma)0ss$	$0klm$: $l=2n$; $h0lm$: $h+m=2n$
29.3			10	$Pca2_1(0\frac{1}{2}\gamma)$	$0KLm$: $L=2n$; $H0Lm$: $H=2n$
29.4		$(2mm, \bar{1}1\bar{1})$	9	$P2_1ca(00\gamma)$	$hk00$: $h=2n$; $h0lm$: $l=2n$
29.5			9	$P2_1ab(00\gamma)$	$h0lm$: $h=2n$; $hk00$: $k=2n$
29.6			9	$P2_1ab(00\gamma)0s0$	$h0lm$: $h+m=2n$; $hk00$: $k=2n$
29.7			10	$P2_1ca(0\frac{1}{2}\gamma)$	$H0Lm$: $L=2n$; $HK00$: $H=2n$
30.1	$Pcn2$	$(mm2, 111)$	9	$Pcn2(00\gamma)$	$0klm$: $l=2n$; $h0lm$: $h+l=2n$
30.2			9	$Pcn2(00\gamma)s0s$	$0klm$: $l+m=2n$; $h0lm$: $h+l=2n$
30.3			10	$Pcn2(0\frac{1}{2}\gamma)$	$0KLm$: $L=2n$; $H0Lm$: $H+L=2n$
30.4		$(2mm, \bar{1}1\bar{1})$	9	$P2na(00\gamma)$	$h0lm$: $h+l=2n$; $hk00$: $h=2n$
30.5			9	$P2an(00\gamma)$	$h0lm$: $h=2n$; $hk00$: $h+k=2n$
30.6			9	$P2an(00\gamma)0s0$	$h0lm$: $h+m=2n$; $hk00$: $h+k=2n$
30.7			10	$P2na(0\frac{1}{2}\gamma)$	$H0Lm$: $H+L=2n$; $HK00$: $H=2n$
30.8			11	$P2an(\frac{1}{2}\frac{1}{2}\gamma)0q0$	$H0Lm$: $2H+m=4n$; $HK00$: $H+K=2n$
31.1	$Pmn2_1$	$(mm2, 111)$	9	$Pmn2_1(00\gamma)$	$h0lm$: $h+l=2n$
31.2			9	$Pmn2_1(00\gamma)s0s$	$0klm$: $m=2n$; $h0lm$: $h+l=2n$
31.3			10	$Pmn2_1(0\frac{1}{2}\gamma)$	$H0Lm$: $H+L=2n$
31.4			10	$Pmn2_1(0\frac{1}{2}\gamma)s0s$	$0KLm$: $m=2n$; $H0Lm$: $H+L=2n$
31.5		$(2mm, \bar{1}1\bar{1})$	9	$P2_1nm(00\gamma)$	$h0lm$: $h+l=2n$
31.6			9	$P2_1mn(00\gamma)$	$hk00$: $h+k=2n$
31.7			9	$P2_1mn(00\gamma)0s0$	$hk00$: $h+k=2n$; $h0lm$: $m=2n$
31.8			10	$P2_1nm(0\frac{1}{2}\gamma)$	$H0Lm$: $H+L=2n$
32.1	$Pba2$	$(mm2, 111)$	9	$Pba2(00\gamma)$	$0klm$: $k=2n$; $h0lm$: $h=2n$
32.2			9	$Pba2(00\gamma)s0s$	$0klm$: $k+m=2n$; $h0lm$: $h=2n$
32.3			9	$Pba2(00\gamma)ss0$	$0klm$: $k+m=2n$; $h0lm$: $h+m=2n$
32.4			11	$Pba2(\frac{1}{2}\frac{1}{2}\gamma)qq0$	$0KLm$: $2K+m=4n$; $H0Lm$: $2H+m=4n$
32.5		$(m2m, 1\bar{1}\bar{1})$	10	$Pc2a(0\frac{1}{2}\gamma)$	$0KLm$: $L=2n$; $HK00$: $H=2n$
32.6		$(2mm, \bar{1}1\bar{1})$	9	$P2cb(00\gamma)$	$h0lm$: $l=2n$; $hk00$: $k=2n$
33.1	$Pbn2_1$	$(mm2, 111)$	9	$Pbn2_1(00\gamma)$	$0klm$: $k=2n$; $h0lm$: $h+l=2n$
33.2			9	$Pbn2_1(00\gamma)s0s$	$0klm$: $k+m=2n$; $h0lm$: $h+l=2n$
33.3			11	$Pbn2_1(\frac{1}{2}\frac{1}{2}\gamma)qq0$	$0KLm$: $2K+m=4n$; $H0Lm$: $2H+2L+m=4n$
33.4		$(2mm, \bar{1}1\bar{1})$	9	$P2_1nb(00\gamma)$	$h0lm$: $h+l=2n$; $hk00$: $k=2n$
33.5			9	$P2_1cn(00\gamma)$	$h0lm$: $l=2n$; $hk00$: $h+k=2n$
34.1	$Pnn2$	$(mm2, 111)$	9	$Pnn2(00\gamma)$	$0klm$: $k+l=2n$; $h0lm$: $h+l=2n$
34.2			9	$Pnn2(00\gamma)s0s$	$0klm$: $k+l+m=2n$; $h0lm$: $h+l=2n$
34.3			11	$Pnn2(\frac{1}{2}\frac{1}{2}\gamma)qq0$	$0KLm$: $2K+2L+m=4n$; $H0Lm$: $2H+2L+m=4n$
34.4		$(2mm, \bar{1}1\bar{1})$	9	$P2nn(00\gamma)$	$h0lm$: $h+l=2n$; $hk00$: $h+k=2n$
34.5			11	$P2nn(\frac{1}{2}\frac{1}{2}\gamma)0q0$	$H0Lm$: $2H+2L+m=4n$; $HK00$: $H+K=2n$
35.1	$Cmm2$	$(mm2, 111)$	13	$Cmm2(00\gamma)$	
35.2			13	$Cmm2(00\gamma)s0s$	$0klm$: $m=2n$
35.3			13	$Cmm2(00\gamma)ss0$	$0klm$: $m=2n$; $h0lm$: $m=2n$
35.4			14	$Cmm2(10\gamma)$	
35.5			14	$Cmm2(10\gamma)s0s$	$0KLm$: $m=2n$
35.6			14	$Cmm2(10\gamma)ss0$	$0KLm$: $m=2n$; $H0Lm$: $m=2n$
35.7		$(2mm, \bar{1}1\bar{1})$	15	$A2mm(00\gamma)$	
35.8			15	$A2mm(00\gamma)0s0$	$h0lm$: $m=2n$
35.9			16	$A2mm(\frac{1}{2}0\gamma)$	
35.10			16	$A2mm(\frac{1}{2}0\gamma)0s0$	$H0Lm$: $m=2n$
36.1	$Cmc2_1$	$(mm2, 111)$	13	$Cmc2_1(00\gamma)$	
36.2			13	$Cmc2_1(00\gamma)s0s$	$0klm$: $m=2n$; $h0lm$: $l=2n$
36.3			14	$Cmc2_1(10\gamma)$	$H0Lm$: $L=2n$
36.4			14	$Cmc2_1(10\gamma)s0s$	$0KLm$: $m=2n$; $H0Lm$: $L=2n$
36.5		$(2mm, \bar{1}1\bar{1})$	15	$A2_1am(00\gamma)$	$h0lm$: $h=2n$

Table 9.8.3.5. (3 + 1)-*Dimensional superspace groups (cont.)*

No.	Basic space group	Point group K_s	Bravais class No.	Group symbol	Special reflection conditions
36.6			15	$A2_1am(00\gamma)0s0$	$h0lm$: $h+m=2n$
36.7			15	$A2_1ma(00\gamma)$	$hk00$: $h=2n$
36.8			15	$A2_1ma(00\gamma)0s0$	$h0lm$: $m=2n$; $hk00$: $h=2n$
37.1	$Ccc2$	$(mm2, 111)$	13	$Ccc2(00\gamma)$	$0klm$: $l=2n$; $h0lm$: $l=2n$
37.2			13	$Ccc2(00\gamma)s0s$	$0klm$: $l+m=2n$; $h0lm$: $l=2n$
37.3			14	$Ccc2(10\gamma)$	$0KLm$: $L=2n$; $H0Lm$: $L=2n$
37.4			14	$Ccc2(10\gamma)s0s$	$0KLm$: $L+m=2n$; $H0Lm$: $L=2n$
37.5		$(2mm, \bar{1}1\bar{1})$	15	$A2aa(00\gamma)$	$h0lm$: $h=2n$; $hk00$: $h=2n$
37.6			15	$A2aa(00\gamma)0s0$	$h0lm$: $h+m=2n$; $hk00$: $h=2n$
38.1	$C2mm$	$(2mm, \bar{1}1\bar{1})$	13	$C2mm(00\gamma)$	
38.2			13	$C2mm(00\gamma)0s0$	$h0lm$: $m=2n$
38.3			14	$C2mm(10\gamma)$	
38.4			14	$C2mm(10\gamma)0s0$	$H0Lm$: $m=2n$
38.5		$(mm2, 111)$	15	$Amm2(00\gamma)$	
38.6			15	$Amm2(00\gamma)s0s$	$0klm$: $m=2n$
38.7			15	$Amm2(00\gamma)ss0$	$0klm$: $m=2n$; $h0lm$: $m=2n$
38.8			15	$Amm2(00\gamma)0ss$	$h0lm$: $m=2n$
38.9			16	$Amm2(\frac{1}{2}0\gamma)$	
38.10			16	$Amm2(\frac{1}{2}0\gamma)0ss$	$H0Lm$: $m=2n$
38.11		$(m2m, 1\bar{1}\bar{1})$	15	$Am2m(00\gamma)$	
38.12			15	$Am2m(00\gamma)s00$	$0klm$: $m=2n$
38.13			16	$Am2m(\frac{1}{2}0\gamma)$	
39.1	$C2mb$	$(2mm, \bar{1}1\bar{1})$	13	$C2mb(00\gamma)$	$hk00$: $k=2n$
39.2			13	$C2mb(00\gamma)0s0$	$h0lm$: $m=2n$; $hk00$: $k=2n$
39.3			14	$C2mb(10\gamma)$	$HK00$: $K=2n$
39.4			14	$C2mb(10\gamma)0s0$	$H0Lm$: $m=2n$; $HK00$: $K=2n$
39.5		$(mm2, 111)$	15	$Abm2(00\gamma)$	$0klm$: $k=2n$
39.6			15	$Abm2(00\gamma)s0s$	$0klm$: $k+m=2n$
39.7			15	$Abm2(00\gamma)ss0$	$0klm$: $k+m=2n$; $h0lm$: $m=2n$
39.8			15	$Abm2(00\gamma)0ss$	$0klm$: $k=2n$; $h0lm$: $m=2n$
39.9			16	$Abm2(\frac{1}{2}0\gamma)$	$0KLm$: $K=2n$
39.10			16	$Abm2(\frac{1}{2}0\gamma)0ss$	$0KLm$: $K+m=2n$
39.11		$(m2m, 1\bar{1}\bar{1})$	15	$Ac2m(00\gamma)$	$0klm$: $l=2n$
39.12			15	$Ac2m(00\gamma)s00$	$0klm$: $l+m=2n$
39.13			16	$Ac2m(\frac{1}{2}0\gamma)$	$0KLm$: $L=2n$
40.1	$C2cm$	$(2mm, \bar{1}1\bar{1})$	13	$C2cm(00\gamma)$	$h0lm$: $l=2n$
40.2			14	$C2cm(10\gamma)$	$H0Lm$: $L=2n$
40.3		$(mm2, 111)$	15	$Ama2(00\gamma)$	$h0lm$: $h=2n$
40.4			15	$Ama2(00\gamma)s0s$	$0klm$: $m=2n$; $h0lm$: $h=2n$
40.5			15	$Ama2(00\gamma)ss0$	$0klm$: $m=2n$; $h0lm$: $h+m=2n$
40.6			15	$Ama2(00\gamma)0ss$	$h0lm$: $h+m=2n$
40.7		$(m2m, 1\bar{1}\bar{1})$	15	$Am2a(00\gamma)$	$hk00$: $h=2n$
40.8			15	$Am2a(00\gamma)s00$	$0klm$: $m=2n$; $hk00$: $h=2n$
41.1	$C2cb$	$(2mm, \bar{1}1\bar{1})$	13	$C2cb(00\gamma)$	$h0lm$: $l=2n$; $hk00$: $k=2n$
41.2			14	$C2cb(10\gamma)$	$H0Lm$: $L=2n$; $HK00$: $K=2n$
41.3		$(mm2, 111)$	15	$Aba2(00\gamma)$	$0klm$: $k=2n$; $h0lm$: $h=2n$
41.4			15	$Aba2(00\gamma)s0s$	$0klm$: $k+m=2n$; $h0lm$: $h=2n$
41.5			15	$Aba2(00\gamma)ss0$	$0klm$: $k+m=2n$; $h0lm$: $h+m=2n$
41.6			15	$Aba2(00\gamma)0ss$	$0klm$: $k=2n$; $h0lm$: $h+m=2n$
41.7		$(m2m, 1\bar{1}\bar{1})$	15	$Ac2a(00\gamma)$	$0klm$: $l=2n$; $hk00$: $h=2n$
41.8			15	$Ac2a(00\gamma)s00$	$0klm$: $l+m=2n$; $hk00$: $h=2n$
42.1	$Fmm2$	$(mm2, 111)$	17	$Fmm2(00\gamma)$	
42.2			17	$Fmm2(00\gamma)s0s$	$0klm$: $m=2n$
42.3			17	$Fmm2(00\gamma)ss0$	$0klm$: $m=2n$; $h0lm$: $m=2n$
42.4			18	$Fmm2(10\gamma)$	
42.5			18	$Fmm2(10\gamma)s0s$	$0KLm$: $m=2n$
42.6			18	$Fmm2(10\gamma)ss0$	$0KLm$: $m=2n$; $H0Lm$: $m=2n$
42.7		$(2mm, \bar{1}1\bar{1})$	17	$F2mm(00\gamma)$	
42.8			17	$F2mm(00\gamma)0s0$	$h0lm$: $m=2n$
42.9			18	$F2mm(10\gamma)$	
42.10			18	$F2mm(10\gamma)0s0$	$H0Lm$: $m=2n$
43.1	$Fdd2$	$(mm2, 111)$	17	$Fdd2(00\gamma)$	$0klm$: $k+l=4n$
43.2			17	$Fdd2(00\gamma)s0s$	$0klm$: $k+l+2m=4n$; $h0lm$: $h+l=4n$
43.3		$(2mm, \bar{1}1\bar{1})$	17	$F2dd(00\gamma)$	$h0lm$: $h+l=4n$
44.1	$Imm2$	$(mm2, 111)$	12	$Imm2(00\gamma)$	
44.2			12	$Imm2(00\gamma)s0s$	$0klm$: $m=2n$

Table 9.8.3.5. (3 + 1)-*Dimensional superspace groups (cont.)*

No.	Basic space group	Point group K_s	Bravais class No.	Group symbol	Special reflection conditions
44.3			12	$Imm2(00\gamma)ss0$	$0klm$: $m=2n$; $h0lm$: $m=2n$
44.4		$(2mm, \bar{1}1\bar{1})$	12	$I2mm(00\gamma)$	
44.5			12	$I2mm(00\gamma)0s0$	$h0lm$: $m=2n$
45.1	$Iba2$	$(mm2, 111)$	12	$Iba2(00\gamma)$	$0klm$: $k=2n$; $h0lm$: $h=2n$
45.2			12	$Iba2(00\gamma)s0s$	$0klm$: $k+m=2n$; $h0lm$: $h=2n$
45.3			12	$Iba2(00\gamma)ss0$	$0klm$: $k+m=2n$; $h0lm$: $h+m=2n$
45.4		$(2mm, \bar{1}1\bar{1})$	12	$I2cb(00\gamma)$	$h0lm$: $l=2n$; $hk00$: $k=2n$
45.5			12	$I2cb(00\gamma)0s0$	$h0lm$: $l+m=2n$; $hk00$: $k=2n$
46.1	$Ima2$	$(mm2, 111)$	12	$Ima2(00\gamma)$	$h0lm$: $h=2n$
46.2			12	$Ima2(00\gamma)s0s$	$0klm$: $m=2n$; $h0lm$: $h=2n$
46.3			12	$Ima2(00\gamma)ss0$	$0klm$: $m=2n$; $h0lm$: $h+m=2n$
46.4			12	$Ima2(00\gamma)0ss$	$h0lm$: $h+m=2n$
46.5		$(2mm, \bar{1}1\bar{1})$	12	$I2mb(00\gamma)$	$hk00$: $k=2n$
46.6			12	$I2mb(00\gamma)0s0$	$h0lm$: $m=2n$; $hk00$: $k=2n$
46.7			12	$I2cm(00\gamma)$	$h0lm$: $l=2n$
46.8			12	$I2cm(00\gamma)0s0$	$h0lm$: $l+m=2n$
47.1	$Pmmm$	$(mmm, 11\bar{1})$	9	$Pmmm(00\gamma)$	
47.2			9	$Pmmm(00\gamma)s00$	$0klm$: $m=2n$
47.3			9	$Pmmm(00\gamma)ss0$	$0klm$: $m=2n$; $h0lm$: $m=2n$
47.4			10	$Pmmm(0\frac{1}{2}\gamma)$	
47.5			10	$Pmmm(0\frac{1}{2}\gamma)s00$	$0KLm$: $m=2n$
47.6			11	$Pmmm(\frac{1}{2}\frac{1}{2}\gamma)$	
48.1	$Pnnn$	$(mmm, 11\bar{1})$	9	$Pnnn(00\gamma)$	$0klm$: $k+l=2n$; $h0lm$: $h+l=2n$; $hk00$: $h+k=2n$
48.2			9	$Pnnn(00\gamma)s00$	$0klm$: $k+l+m=2n$; $h0lm$: $h+l=2n$; $hk00$: $h+k=2n$
48.3			11	$Pnnn(\frac{1}{2}\frac{1}{2}\gamma)qq0$	$0KLm$: $2K+2L+m=4n$; $H0Lm$: $2H+2L+m=2n$; $HK00$: $H+K=2n$
49.1	$Pccm$	$(mmm, 11\bar{1})$	9	$Pccm(00\gamma)$	$0klm$: $l=2n$; $h0lm$: $l=2n$
49.2			9	$Pccm(00\gamma)s00$	$0klm$: $l+m=2n$; $h0lm$: $l=2n$
49.3			9	$Pmaa(00\gamma)$	$h0lm$: $h=2n$; $hk00$: $h=2n$
49.4			9	$Pmaa(00\gamma)s00$	$0klm$: $m=2n$; $h0lm$: $h=2n$; $hk00$: $h=2n$
49.5			9	$Pmaa(00\gamma)ss0$	$0klm$: $m=2n$; $h0lm$: $h+m=2n$; $hk00$: $h=2n$
49.6			9	$Pmaa(00\gamma)0s0$	$h0lm$: $h+m=2n$; $hk00$: $h=2n$
49.7			10	$Pccm(0\frac{1}{2}\gamma)$	$0KLm$: $L=2n$; $H0Lm$: $L=2n$
49.8			10	$Pmaa(0\frac{1}{2}\gamma)$	$H0Lm$: $H=2n$; $HK00$: $H=2n$
49.9			10	$Pmaa(0\frac{1}{2}\gamma)s00$	$0KLm$: $m=2n$; $H0Lm$: $H=2n$; $HK00$: $H=2n$
49.10			11	$Pccm(\frac{1}{2}\frac{1}{2}\gamma)$	$0KLm$: $L=2n$; $H0Lm$: $L=2n$
50.1	$Pban$	$(mmm, 11\bar{1})$	9	$Pban(00\gamma)$	$0klm$: $k=2n$; $h0lm$: $h=2n$
50.2			9	$Pban(00\gamma)s00$	$0klm$: $k+m=2n$; $h0lm$: $h=2n$
50.3			9	$Pban(00\gamma)ss0$	$0klm$: $k+m=2n$; $h0lm$: $h+m=2n$
50.4			9	$Pcna(00\gamma)$	$0klm$: $l=2n$; $h0lm$: $h+l=2n$; $hk00$: $h=2n$
50.5			9	$Pcna(00\gamma)s00$	$0klm$: $l+m=2n$; $h0lm$: $h+l=2n$; $hk00$: $h=2n$
50.6			10	$Pcna(0\frac{1}{2}\gamma)$	$0KLm$: $L=2n$; $H0Lm$: $H+L=2n$; $HK00$: $H=2n$
50.7			11	$Pban(\frac{1}{2}\frac{1}{2}\gamma)qq0$	$0KLm$: $2K+m=4n$; $H0Lm$: $2H+m=4n$; $HK00$: $H+K=2n$
51.1	$Pmma$	$(mmm, 11\bar{1})$	9	$Pmma(00\gamma)$	$hk00$: $h=2n$
51.2			9	$Pmma(00\gamma)s00$	$0klm$: $m=2n$; $hk00$: $h=2n$
51.3			9	$Pmma(00\gamma)ss0$	$0klm$: $m=2n$; $h0lm$: $m=2n$; $hk00$: $h=2n$
51.4			9	$Pmma(00\gamma)0s0$	$h0lm$: $m=2n$; $hk00$: $h=2n$
51.5			9	$Pmam(00\gamma)$	$h0lm$: $h=2n$
51.6			9	$Pmam(00\gamma)s00$	$0klm$: $m=2n$; $h0lm$: $h=2n$
51.7			9	$Pmam(00\gamma)ss0$	$0klm$: $m=2n$; $h0lm$: $h+m=2n$
51.8			9	$Pmam(00\gamma)0s0$	$h0lm$: $h+m=2n$
51.9			9	$Pmcm(00\gamma)$	$h0lm$: $l=2n$
51.10			9	$Pmcm(00\gamma)s00$	$0klm$: $m=2n$; $h0lm$: $l=2n$
51.11			10	$Pmma(0\frac{1}{2}\gamma)$	$HK00$: $H=2n$
51.12			10	$Pmma(0\frac{1}{2}\gamma)s00$	$0KLm$: $m=2n$; $HK00$: $H=2n$
51.13			10	$Pmam(0\frac{1}{2}\gamma)$	$H0Lm$: $H=2n$
51.14			10	$Pmam(0\frac{1}{2}\gamma)s00$	$0KLm$: $m=2n$; $H0Lm$: $H=2n$
51.15			10	$Pmcm(0\frac{1}{2}\gamma)$	$H0Lm$: $L=2n$
51.16			10	$Pmcm(0\frac{1}{2}\gamma)s00$	$0KLm$: $m=2n$; $H0Lm$: $L=2n$
51.17			10	$Pcmm(0\frac{1}{2}\gamma)$	$0KLm$: $L=2n$
51.18			11	$Pcmm(\frac{1}{2}\frac{1}{2}\gamma)$	$0KLm$: $L=2n$
52.1	$Pnna$	$(mmm, 11\bar{1})$	9	$Pnna(00\gamma)$	$0klm$: $k+l=2n$; $h0lm$: $h+l=2n$; $hk00$: $h=2n$
52.2			9	$Pnna(00\gamma)s00$	$0klm$: $k+l+m=2n$; $h0lm$: $h+l=2n$; $hk00$: $h=2n$
52.3			9	$Pbnn(00\gamma)$	$0klm$: $k=2n$; $h0lm$: $h+l=2n$; $hk00$: $h+k=2n$

Table 9.8.3.5. (3 + 1)-*Dimensional superspace groups (cont.)*

No.	Basic space group	Point group K_s	Bravais class No.	Group symbol	Special reflection conditions
52.4			9	Pbnn(00γ)s00	0klm: k+m=2n; h0lm: h+l=2n; hk00: h+k=2n
52.5			9	Pcnn(00γ)	0klm: l=2n; h0lm: h+l=2n; hk00: h+k=2n
52.6			9	Pcnn(00γ)s00	0klm: l+m=2n; h0lm: h+l=2n; hk00: h+k=2n
52.7			11	Pbnn($\frac{1}{2}\frac{1}{2}\gamma$)qq0	0KLm: 2K+m=4n; H0Lm: 2H+2L+m=4n; HK00: H+K=2n
53.1	Pmna	$(mmm, 11\bar{1})$	9	Pmna(00γ)	h0lm: h+l=2n; hk00: h=2n
53.2			9	Pmna(00γ)s00	0klm: m=2n; h0lm: h+l=2n; hk00: h=2n
53.3			9	Pcnm(00γ)	0klm: l=2n; h0lm: h+l=2n
53.4			9	Pcnm(00γ)s00	0klm: l+m=2n; h0lm: h+l=2n
53.5			9	Pbmn(00γ)	0klm: k=2n; hk00: h+k=2n
53.6			9	Pbmn(00γ)s00	0klm: k+m=2n; hk00: h+k=2n
53.7			9	Pbmn(00γ)ss0	0klm: k+m=2n; h0lm: m=2n; hk00: h+k=2n
53.8			9	Pbmn(00γ)0s0	0klm: k=2m; h0lm: m=2n; hk00: h+k=2n
53.9			10	Pmna($0\frac{1}{2}\gamma$)	H0Lm: H+L=2n; HK00: H=2n
53.10			10	Pmna($0\frac{1}{2}\gamma$)s00	0KLm: m=2n; H0Lm: H+L=2n; HK00: H=2n
53.11			10	Pcnm($0\frac{1}{2}\gamma$)	0KLm: L=2n; H0Lm: H+L=2n
54.1	Pcca	$(mmm, 11\bar{1})$	9	Pcca(00γ)	0klm: l=2n; h0lm: l=2n; hk00: h=2n
54.2			9	Pcca(00γ)s00	0klm: l+m=2n; h0lm: l=2n; hk00: h=2n
54.3			9	Pcaa(00γ)	0klm: l=2n; h0lm: h=2n; hk00: h=2n
54.4			9	Pcaa(00γ)0s0	0klm: l=2n; h0lm: h+m=2n; hk00: h=2n
54.5			9	Pbab(00γ)	0klm: k=2n; h0lm: h=2n; hk00: k=2n
54.6			9	Pbab(00γ)s00	0klm: k+m=2n; h0lm: h=2n; hk00: k=2n
54.7			9	Pbab(00γ)ss0	0klm: k+m=2n; h0lm: h+m=2n; hk00: k=2n
54.8			9	Pbab(00γ)0s0	0klm: k=2n; h0lm: h+m=2n; hk00: k=2n
54.9			10	Pcca($0\frac{1}{2}\gamma$)	0KLm: L=2n; H0Lm: L=2n; HK00: H=2n
54.10			10	Pcaa($0\frac{1}{2}\gamma$)	0KLm: L=2n; H0Lm: H=2n; HK00: H=2n
55.1	Pbam	$(mmm, 11\bar{1})$	9	Pbam(00γ)	0klm: k=2n; h0lm: h=2n
55.2			9	Pbam(00γ)s00	0klm: k+m=2n; h0lm: h=2n
55.3			9	Pbam(00γ)ss0	0klm: k+m=2n; h0lm: h+m=2n
55.4			9	Pcma(00γ)	0klm: l=2n; hk00: h=2n
55.5			9	Pcma(00γ)0s0	0klm: l=2n; h0lm: m=2n; hk00: h=2n
55.6			10	Pcma($0\frac{1}{2}\gamma$)	0KLm: L=2n; HK00: H=2n
56.1	Pccn	$(mmm, 11\bar{1})$	9	Pccn(00γ)	0klm: l=2n; h0lm: l=2n; hk00: h+k=2n
56.2			9	Pccn(00γ)s00	0klm: l+m=2n; h0lm: l=2n; hk00: h+k=2n
56.3			9	Pbnb(00γ)	0klm: k=2n; h0lm: h+l=2n; hk00: k=2n
56.4			9	Pbnb(00γ)s00	0klm: k+m=2n; h0lm: h+l=2n; hk00: k=2n
57.1	Pcam	$(mmm, 11\bar{1})$	9	Pcam(00γ)	0klm: l=2n; h0lm: h=2n
57.2			9	Pcam(00γ)0s0	0klm: l=2n; h0lm: h+m=2n
57.3			9	Pmca(00γ)	h0lm: l=2n; hk00: h=2n
57.4			9	Pmca(00γ)s00	0klm: m=2n; h0lm: l=2n; hk00: h=2n
57.5			9	Pbma(00γ)	0klm: k=2n; hk00: h=2n
57.6			9	Pbma(00γ)s00	0klm: k+m=2n; hk00: h=2n
57.7			9	Pbma(00γ)ss0	0klm: k+m=2n; h0lm: m=2n; hk00: h=2n
57.8			9	Pbma(00γ)0s0	0klm: k=2n; h0lm: m=2n; hk00: h=2n
57.9			10	Pcam($0\frac{1}{2}\gamma$)	0KLm: L=2n; H0Lm: H=2n
57.10			10	Pmca($0\frac{1}{2}\gamma$)	H0Lm: L=2n; HK00: H=2n
57.11			10	Pmca($0\frac{1}{2}\gamma$)s00	0KLm: m=2n; H0Lm: L=2n; HK00: H=2n
58.1	Pnnm	$(mmm, 11\bar{1})$	9	Pnnm(00γ)	0klm: k+l=2n; h0lm: h+l=2n
58.2			9	Pnnm(00γ)s00	0klm: k+l+m=2n; h0lm: h+l=2n
58.3			9	Pmnn(00γ)	h0lm: h+l=2n; hk00: h+k=2n
58.4			9	Pmnn(00γ)s00	0klm: m=2n; h0lm: h+l=2n; hk00: h+k=2n
59.1	Pmmn	$(mmm, 11\bar{1})$	9	Pmmn(00γ)	hk00: h+k=2n
59.2			9	Pmmn(00γ)s00	0klm: m=2n; hk00: h+k=2n
59.3			9	Pmmn(00γ)ss0	0klm: m=2n; h0lm: m=2n; hk00: h+k=2n
59.4			9	Pmnm(00γ)	h0lm: h+l=2n
59.5			9	Pmnm(00γ)s00	0klm: m=2n; h0lm: h+l=2n
59.6			10	Pmnm($0\frac{1}{2}\gamma$)	H0Lm: H+L=2n
59.7			10	Pmnm($0\frac{1}{2}\gamma$)s00	0KLm: m=2n; H0Lm: H+L=2n
60.1	Pbcn	$(mmm, 11\bar{1})$	9	Pbcn(00γ)	0klm: k=2n; h0lm: l=2n; hk00: h+k=2n
60.2			9	Pbcn(00γ)s00	0klm: k+m=2n; h0lm: l=2n; hk00: h+k=2n
60.3			9	Pnca(00γ)	0klm: k+l=2n; h0lm: l=2n; hk00: h=2n
60.4			9	Pnca(00γ)s00	0klm: k+l+m=2n; h0lm: l=2n; hk00: h=2n
60.5			9	Pbna(00γ)	0klm: k=2n; h0lm: h+l=2n; hk00: h=2n
60.6			9	Pbna(00γ)s00	0klm: k+m=2n; h0lm: h+l=2n; hk00: h=2n
61.1	Pbca	$(mmm, 11\bar{1})$	9	Pbca(00γ)	0klm: k=2n; h0lm: l=2n; hk00: h=2n
61.2			9	Pbca(00γ)s00	0klm: k+m=2n; h0lm: l=2n; hk00: h=2n

Table 9.8.3.5. (3 + 1)-*Dimensional superspace groups (cont.)*

No.	Basic space group	Point group K_s	Bravais class No.	Group symbol	Special reflection conditions
62.1	*Pnma*	(*mmm*, 11$\bar{1}$)	9	*Pnma*(00γ)	0*klm*: *k*+*l*=2*n*; *hk*00: *h*=2*n*
62.2			9	*Pnma*(00γ)0*s*0	0*klm*: *k*+*l*=2*n*; *h*0*lm*: *m*=2*n*; *hk*00: *h*=2*n*
62.3			9	*Pbnm*(00γ)	0*klm*: *k*=2*n*; *h*0*lm*: *h*+*l*=2*n*
62.4			9	*Pbnm*(00γ)*s*00	0*klm*: *k*+*m*=2*n*; *h*0*lm*: *h*+*l*=2*n*
62.5			9	*Pmcn*(00γ)	*h*0*lm*: *l*=2*n*; *hk*00: *h*+*k*=2*n*
62.6			9	*Pmcn*(00γ)*s*00	0*klm*: *m*=2*n*; *h*0*lm*: *l*=2*n*; *hk*00: *h*+*k*=2*n*
63.1	*Cmcm*	(*mmm*, 11$\bar{1}$)	13	*Cmcm*(00γ)	*h*0*lm*: *l*=2*n*
63.2			13	*Cmcm*(00γ)*s*00	0*klm*: *m*=2*n*; *h*0*lm*: *l*=2*n*
63.3			14	*Cmcm*(10γ)	*H*0*Lm*: *L*=2*n*
63.4			14	*Cmcm*(10γ)*s*00	0*KLm*: *m*=2*n*; *H*0*Lm*: *L*=2*n*
63.5			15	*Amam*(00γ)	*h*0*lm*: *h*=2*n*
63.6			15	*Amam*(00γ)*s*00	0*klm*: *m*=2*n*; *h*0*lm*: *h*=2*n*
63.7			15	*Amam*(00γ)*ss*0	0*klm*: *m*=2*n*; *h*0*lm*: *h*+*m*=2*n*
63.8			15	*Amam*(00γ)0*s*0	*h*0*lm*: *h*+*m*=2*n*
63.9			15	*Amma*(00γ)	*hk*00: *h*=2*n*
63.10			15	*Amma*(00γ)*s*00	0*klm*: *m*=2*n*; *hk*00: *h*=2*n*
63.11			15	*Amma*(00γ)*ss*0	0*klm*: *m*=2*n*; *h*0*lm*: *m*=2*n*; *hk*00: *h*=2*n*
63.12			15	*Amma*(00γ)0*s*0	*h*0*lm*: *m*=2*n*; *hk*00: *h*=2*n*
64.1	*Cmca*	(*mmm*, 11$\bar{1}$)	13	*Cmca*(00γ)	*h*0*lm*: *l*=2*n*; *hk*00: *h*=2*n*
64.2			13	*Cmca*(00γ)*s*00	0*klm*: *m*=2*n*; *h*0*lm*: *l*=2*n*; *hk*00: *h*=2*n*
64.3			14	*Cmca*(10γ)	*H*0*Lm*: *L*=2*n*; *HK*00: *H*=2*n*
64.4			14	*Cmca*(10γ)*s*00	0*KLm*: *m*=2*n*; *H*0*Lm*: *L*=2*n*; *HK*00: *H*=2*n*
64.5			15	*Abma*(00γ)	0*klm*: *k*=2*n*; *hk*00: *h*=2*n*
64.6			15	*Abma*(00γ)*s*00	0*klm*: *k*+*m*=2*n*; *hk*00: *h*=2*n*
64.7			15	*Abma*(00γ)*ss*0	0*klm*: *k*+*m*=2*n*; *h*0*lm*: *m*=2*n*; *hk*00: *h*=2*n*
64.8			15	*Abma*(00γ)0*s*0	0*klm*: *k*=2*n*; *h*0*lm*: *m*=2*n*; *hk*00: *h*=2*n*
64.9			15	*Acam*(00γ)	0*klm*: *l*=2*n*; *h*0*lm*: *h*=2*n*
64.10			15	*Acam*(00γ)*s*00	0*klm*: *l*+*m*=2*n*; *h*0*lm*: *h*=2*n*
64.11			15	*Acam*(00γ)*ss*0	0*klm*: *l*+*m*=2*n*; *h*0*lm*: *h*+*m*=2*n*
64.12			15	*Acam*(00γ)0*s*0	0*klm*: *l*=2*n*; *h*0*lm*: *h*+*m*=2*n*
65.1	*Cmmm*	(*mmm*, 11$\bar{1}$)	13	*Cmmm*(00γ)	
65.2			13	*Cmmm*(00γ)*s*00	0*klm*: *m*=2*n*
65.3			13	*Cmmm*(00γ)*ss*0	0*klm*: *m*=2*n*; *h*0*lm*: *m*=2*n*
65.4			14	*Cmmm*(10γ)	
65.5			14	*Cmmm*(10γ)*s*00	0*KLm*: *m*=2*n*
65.6			14	*Cmmm*(10γ)*ss*0	0*KLm*: *m*=2*n*; *H*0*Lm*: *m*=2*n*
65.7			15	*Ammm*(00γ)	
65.8			15	*Ammm*(00γ)*s*00	0*klm*: *m*=2*n*
65.9			15	*Ammm*(00γ)*ss*0	0*klm*: *m*=2*n*; *h*0*lm*: *m*=2*n*
65.10			15	*Ammm*(00γ)0*s*0	*h*0*lm*: *m*=2*n*
65.11			16	*Ammm*($\frac{1}{2}$0γ)	
65.12			16	*Ammm*($\frac{1}{2}$0γ)0*s*0	*H*0*Lm*: *m*=2*n*
66.1	*Cccm*	(*mmm*, 11$\bar{1}$)	13	*Cccm*(00γ)	0*klm*: *l*=2*n*; *h*0*lm*: *l*=2*n*
66.2			13	*Cccm*(00γ)*s*00	0*klm*: *l*+*m*=2*n*; *h*0*lm*: *l*=2*n*
66.3			14	*Cccm*(10γ)	0*KLm*: *L*=2*n*; *H*0*Lm*: *L*=2*n*
66.4			14	*Cccm*(10γ)*s*00	0*KLm*: *L*+*m*=2*n*; *H*0*Lm*: *L*=2*n*
66.5			15	*Amaa*(00γ)	*h*0*lm*: *h*=2*n*; *hk*00: *h*=2*n*
66.6			15	*Amaa*(00γ)*s*00	0*klm*: *m*=2*n*; *h*0*lm*: *h*=2*n*; *hk*00: *h*=2*n*
66.7			15	*Amaa*(00γ)*ss*0	0*klm*: *m*=2*n*; *h*0*lm*: *h*+*m*=2*n*; *hk*00: *h*=2*n*
66.8			15	*Amaa*(00γ)0*s*0	*h*0*lm*: *h*+*m*=2*n*; *hk*00: *h*=2*n*
67.1	*Cmma*	(*mmm*, 11$\bar{1}$)	13	*Cmma*(00γ)	*hk*00: *h*=2*n*
67.2			13	*Cmma*(00γ)*s*00	0*klm*: *m*=2*n*; *hk*00: *h*=2*n*
67.3			13	*Cmma*(00γ)*ss*0	0*klm*: *m*=2*n*; *h*0*lm*: *m*=2*n*; *hk*00: *h*=2*n*
67.4			14	*Cmma*(10γ)	*HK*00: *H*=2*n*
67.5			14	*Cmma*(10γ)*s*00	0*KLm*: *m*=2*n*; *HK*00: *H*=2*n*
67.6			14	*Cmma*(10γ)*ss*0	0*KLm*: *m*=2*n*; *H*0*Lm*: *m*=2*n*; *HK*00: *H*=2*n*
67.7			15	*Acmm*(00γ)	0*klm*: *l*=2*n*
67.8			15	*Acmm*(00γ)*s*00	0*klm*: *l*+*m*=2*n*
67.9			15	*Acmm*(00γ)*ss*0	0*klm*: *l*+*m*=2*n*; *h*0*lm*: *m*=2*n*
67.10			15	*Acmm*(00γ)0*s*0	0*klm*: *l*=2*n*; *h*0*lm*: *m*=2*n*
67.11			16	*Acmm*($\frac{1}{2}$0γ)	0*KLm*: *L*=2*n*
67.12			16	*Acmm*($\frac{1}{2}$0γ)0*s*0	0*KLm*: *L*=2*n*; *H*0*Lm*: *m*=2*n*
68.1	*Ccca*	(*mmm*, 11$\bar{1}$)	13	*Ccca*(00γ)	0*klm*: *l*=2*n*; *h*0*lm*: *l*=2*n*; *hk*00: *h*=2*n*
68.2			13	*Ccca*(00γ)*s*00	0*klm*: *l*+*m*=2*n*; *h*0*lm*: *l*=2*n*; *hk*00: *h*=2*n*
68.3			14	*Ccca*(10γ)	0*KLm*: *L*=2*n*; *H*0*Lm*: *L*=2*n*; *HK*00: *H*=2*n*
68.4			14	*Ccca*(10γ)*s*00	0*KLm*: *L*+*m*=2*n*; *H*0*Lm*: *L*=2*n*; *HK*00: *H*=2*n*

Table 9.8.3.5. (3 + 1)-*Dimensional superspace groups (cont.)*

No.	Basic space group	Point group K_s	Bravais class No.	Group symbol	Special reflection conditions
68.5			15	$Acaa(00\gamma)$	$0klm$: $l=2n$; $h0lm$: $h=2n$; $hk00$: $h=2n$
68.6			15	$Acaa(00\gamma)s00$	$0klm$: $l+m=2n$; $h0lm$: $h=2n$; $hk00$: $h=2n$
68.7			15	$Acaa(00\gamma)ss0$	$0klm$: $l+m=2n$; $h0lm$: $h+m=2n$; $hk00$: $h=2n$
68.8			15	$Acaa(00\gamma)0s0$	$0klm$: $l=2n$; $h0lm$: $h+m=2n$; $hk00$: $h=2n$
69.1	$Fmmm$	$(mmm, 11\bar{1})$	17	$Fmmm(00\gamma)$	
69.2			17	$Fmmm(00\gamma)s00$	$0klm$: $m=2n$
69.3			17	$Fmmm(00\gamma)ss0$	$0klm$: $m=2n$; $h0lm$: $m=2n$
69.4			18	$Fmmm(10\gamma)$	
69.5			18	$Fmmm(10\gamma)s00$	$0KLm$: $m=2n$
69.6			18	$Fmmm(10\gamma)ss0$	$0KLm$: $m=2n$; $H0Lm$: $m=2n$
70.1	$Fddd$	$(mmm, 11\bar{1})$	17	$Fddd(00\gamma)$	$0klm$: $k+l=4n$; $h0lm$: $h+l=4n$; $hk00$: $h+k=4n$
70.2			17	$Fddd(00\gamma)s00$	$0klm$: $k+l+2m=4n$; $h0lm$: $h+l=4n$; $hk00$: $h+k=4n$
71.1	$Immm$	$(mmm, 11\bar{1})$	12	$Immm(00\gamma)$	
71.2			12	$Immm(00\gamma)s00$	$0klm$: $m=2n$
71.3			12	$Immm(00\gamma)ss0$	$0klm$: $m=2n$; $h0lm$: $m=2n$
72.1	$Ibam$	$(mmm, 11\bar{1})$	12	$Ibam(00\gamma)$	$0klm$: $k=2n$; $h0lm$: $h=2n$
72.2			12	$Ibam(00\gamma)s00$	$0klm$: $k+m=2n$; $h0lm$: $h=2n$
72.3			12	$Ibam(00\gamma)ss0$	$0klm$: $k+m=2n$; $h0lm$: $h+m=2n$
72.4			12	$Imcb(00\gamma)$	$h0lm$: $l=2n$; $hk00$: $k=2n$
72.5			12	$Imcb(00\gamma)s00$	$0klm$: $m=2n$; $h0lm$: $l=2n$; $hk00$: $k=2n$
72.6			12	$Imcb(00\gamma)ss0$	$0klm$: $m=2n$; $h0lm$: $l+m=2n$; $hk00$: $k=2n$
72.7			12	$Imcb(00\gamma)0s0$	$h0lm$: $l+m=2n$; $hk00$: $k=2n$
73.1	$Ibca$	$(mmm, 11\bar{1})$	12	$Ibca(00\gamma)$	$0klm$: $k=2n$; $h0lm$: $l=2n$; $hk00$: $h=2n$
73.2			12	$Ibca(00\gamma)s00$	$0klm$: $k+m=2n$; $h0lm$: $l=2n$; $hk00$: $h=2n$
73.3			12	$Ibca(00\gamma)ss0$	$0klm$: $k+m=2n$; $h0lm$: $l+m=2n$; $hk00$: $h=2n$
74.1	$Imma$	$(mmm, 11\bar{1})$	12	$Imma(00\gamma)$	$hk00$: $h=2n$
74.2			12	$Imma(00\gamma)s00$	$0klm$: $m=2n$; $hk00$: $h=2n$
74.3			12	$Imma(00\gamma)ss0$	$0klm$: $m=2n$; $h0lm$: $m=2n$; $hk00$: $h=2n$
74.4			12	$Icmm(00\gamma)$	$0klm$: $l=2n$
74.5			12	$Icmm(00\gamma)s00$	$0klm$: $l+m=2n$
74.6			12	$Icmm(00\gamma)ss0$	$0klm$: $l+m=2n$; $h0lm$: $m=2n$
74.7			12	$Icmm(00\gamma)0s0$	$0klm$: $l=2n$; $h0lm$: $m=2n$
75.1	$P4$	$(4, 1)$	19	$P4(00\gamma)$	
75.2			19	$P4(00\gamma)q$	$00lm$: $m=4n$
75.3			19	$P4(00\gamma)s$	$00lm$: $m=2n$
75.4			20	$P4(\frac{1}{2}\frac{1}{2}\gamma)$	
75.5			20	$P4(\frac{1}{2}\frac{1}{2}\gamma)q$	$00Lm$: $m=4n$
76.1	$P4_1$	$(4, 1)$	19	$P4_1(00\gamma)$	$00lm$: $l=4n$
76.2			20	$P4_1(\frac{1}{2}\frac{1}{2}\gamma)$	$00Lm$: $L=4n$
77.1	$P4_2$	$(4, 1)$	19	$P4_2(00\gamma)$	$00lm$: $l=2n$
77.2			19	$P4_2(00\gamma)q$	$00lm$: $2l+m=4n$
77.3			20	$P4_2(\frac{1}{2}\frac{1}{2}\gamma)$	$00Lm$: $L=2n$
77.4			20	$P4_2(\frac{1}{2}\frac{1}{2}\gamma)q$	$00Lm$: $2L+m=4n$
78.1	$P4_3$	$(4, 1)$	19	$P4_3(00\gamma)$	$00lm$: $l=4n$
78.2			20	$P4_3(\frac{1}{2}\frac{1}{2}\gamma)$	$00Lm$: $L=4n$
79.1	$I4$	$(4, 1)$	21	$I4(00\gamma)$	
79.2			21	$I4(00\gamma)q$	$00lm$: $m=4n$
79.3			21	$I4(00\gamma)s$	$00lm$: $m=2n$
80.1	$I4_1$	$(4, 1)$	21	$I4_1(00\gamma)$	$00lm$: $l=4n$
80.2			21	$I4_1(00\gamma)q$	$00lm$: $l+m=4n$
81.1	$P\bar{4}$	$(\bar{4}, \bar{1})$	19	$P\bar{4}(00\gamma)$	
81.2			20	$P\bar{4}(\frac{1}{2}\frac{1}{2}\gamma)$	
82.1	$I\bar{4}$	$(\bar{4}, \bar{1})$	21	$I\bar{4}(00\gamma)$	
83.1	$P4/m$	$(4/m, 1\bar{1})$	19	$P4/m(00\gamma)$	
83.2			19	$P4/m(00\gamma)s0$	$00lm$: $m=2n$
83.3			20	$P4/m(\frac{1}{2}\frac{1}{2}\gamma)$	
84.1	$P4_2/m$	$(4/m, 1\bar{1})$	19	$P4_2/m(00\gamma)$	$00lm$: $l=2n$
84.2			20	$P4_2/m(\frac{1}{2}\frac{1}{2}\gamma)$	$00Lm$: $L=2n$
85.1	$P4/n$	$(4/m, 1\bar{1})$	19	$P4/n(00\gamma)$	$hk00$: $h+k=2n$
85.2			19	$P4/n(00\gamma)s0$	$00lm$: $m=2n$; $hk00$: $h+k=2n$
85.3			20	$P4/n(\frac{1}{2}\frac{1}{2}\gamma)q0$	$00Lm$: $m=4n$; $HK00$: $H=2n$, $K=2n$
86.1	$P4_2/n$	$(4/m, 1\bar{1})$	19	$P4_2/n(00\gamma)$	$00lm$: $l=2n$; $hk00$: $h+k=2n$
86.2			20	$P4_2/n(\frac{1}{2}\frac{1}{2}\gamma)q0$	$00Lm$: $2L+m=4n$; $HK00$: $H=2n$, $K=2n$
87.1	$I4/m$	$(4/m, 1\bar{1})$	21	$I4/m(00\gamma)$	

Table 9.8.3.5. (3 + 1)-*Dimensional superspace groups (cont.)*

No.	Basic space group	Point group K_s	Bravais class No.	Group symbol	Special reflection conditions
87.2			21	$I4/m(00\gamma)s0$	$00lm$: $m = 2n$
88.1	$I4_1/a$	$(4/m, 1\bar{1})$	21	$I4_1/a(00\gamma)$	$00lm$: $l = 4n$; $hk00$: $h = 2n$
89.1	$P422$	$(422, 1\bar{1}\bar{1})$	19	$P422(00\gamma)$	
89.2			19	$P422(00\gamma)q00$	$00lm$: $m = 4n$
89.3			19	$P422(00\gamma)s00$	$00lm$: $m = 2n$
89.4			20	$P422(\frac{1}{2}\frac{1}{2}\gamma)$	
89.5			20	$P422(\frac{1}{2}\frac{1}{2}\gamma)q00$	$00Lm$: $m = 4n$
90.1	$P42_12$	$(422, 1\bar{1}\bar{1})$	19	$P42_12(00\gamma)$	$h000$: $h = 2n$
90.2			19	$P42_12(00\gamma)q00$	$00lm$: $m = 4n$; $h000$: $h = 2n$
90.3			19	$P42_12(00\gamma)s00$	$00lm$: $m = 2n$; $h000$: $h = 2n$
91.1	$P4_122$	$(422, 1\bar{1}\bar{1})$	19	$P4_122(00\gamma)$	$00lm$: $l = 4n$
91.2			20	$P4_122(\frac{1}{2}\frac{1}{2}\gamma)$	$00Lm$: $L = 4n$
92.1	$P4_12_12$	$(422, 1\bar{1}\bar{1})$	19	$P4_12_12(00\gamma)$	$00lm$: $l = 4n$; $h000$: $h = 2n$
93.1	$P4_222$	$(422, 1\bar{1}\bar{1})$	19	$P4_222(00\gamma)$	$00lm$: $l = 2n$
93.2			19	$P4_222(00\gamma)q00$	$00lm$: $2l + m = 4n$
93.3			20	$P4_222(\frac{1}{2}\frac{1}{2}\gamma)$	$00Lm$: $L = 2n$
93.4			20	$P4_222(\frac{1}{2}\frac{1}{2}\gamma)q00$	$00Lm$: $2L + m = 4n$
94.1	$P4_22_12$	$(422, 1\bar{1}\bar{1})$	19	$P4_22_12(00\gamma)$	$00lm$: $l = 2n$; $h000$: $h = 2n$
94.2			19	$P4_22_12(00\gamma)q00$	$00lm$: $2l + m = 4n$; $h000$: $h = 2n$
95.1	$P4_322$	$(422, 1\bar{1}\bar{1})$	19	$P4_322(00\gamma)$	$00lm$: $l = 4n$
95.2			20	$P4_322(\frac{1}{2}\frac{1}{2}\gamma)$	$00Lm$: $L = 4n$
96.1	$P4_32_12$	$(422, 1\bar{1}\bar{1})$	19	$P4_32_12(00\gamma)$	$00lm$: $l = 4n$; $h000$: $h = 2n$
97.1	$I422$	$(422, 1\bar{1}\bar{1})$	21	$I422(00\gamma)$	
97.2			21	$I422(00\gamma)q00$	$00lm$: $m = 4n$
97.3			21	$I422(00\gamma)s00$	$00lm$: $m = 2n$
98.1	$I4_122$	$(422, 1\bar{1}\bar{1})$	21	$I4_122(00\gamma)$	$00lm$: $l = 4n$
98.2			21	$I4_122(00\gamma)q00$	$00lm$: $l + m = 4n$
99.1	$P4mm$	$(4mm, 111)$	19	$P4mm(00\gamma)$	
99.2			19	$P4mm(00\gamma)ss0$	$00lm$: $m = 2n$; $0klm$: $m = 2n$
99.3			19	$P4mm(00\gamma)0ss$	$0klm$: $m = 2n$; $hhlm$: $m = 2n$
99.4			19	$P4mm(00\gamma)s0s$	$00lm$: $m = 2n$; $hhlm$: $m = 2n$
99.5			20	$P4mm(\frac{1}{2}\frac{1}{2}\gamma)$	
99.6			20	$P4mm(\frac{1}{2}\frac{1}{2}\gamma)0ss$	$0KLm$: $m = 2n$; $HHLm$: $m = 2n$
100.1	$P4bm$	$(4mm, 111)$	19	$P4bm(00\gamma)$	$0klm$: $k = 2n$
100.2			19	$P4bm(00\gamma)ss0$	$00lm$: $m = 2n$; $0klm$: $m = 2n$
100.3			19	$P4bm(00\gamma)0ss$	$0klm$: $k + m = 2n$; $hhlm$: $m = 2n$
100.4			19	$P4bm(00\gamma)s0s$	$00lm$: $m = 2n$; $0klm$: $k = 2n$; $hhlm$: $m = 2n$
100.5			20	$P4bm(\frac{1}{2}\frac{1}{2}\gamma)qq0$	$00Lm$: $m = 4n$; $KKLm$: $2K + m = 4n$
100.6			20	$P4bm(\frac{1}{2}\frac{1}{2}\gamma)qqs$	$00Lm$: $m = 4n$; $KKLm$: $2K + m = 4n$; $H0Lm$: $m = 2n$
101.1	$P4_2cm$	$(4mm, 111)$	19	$P4_2cm(00\gamma)$	$00lm$: $l = 2n$; $0klm$: $l = 2n$
101.2			19	$P4_2cm(00\gamma)0ss$	$00lm$: $l = 2n$; $0klm$: $l + m = 2n$; $hhlm$: $m = 2n$
101.3			20	$P4_2cm(\frac{1}{2}\frac{1}{2}\gamma)$	$00Lm$: $L = 2n$; $HHLm$: $L = 2n$
101.4			20	$P4_2cm(\frac{1}{2}\frac{1}{2}\gamma)0ss$	$00Lm$: $L = 2n$; $HHLm$: $L + m = 2n$; $H0Lm$: $m = 2n$
102.1	$P4_2nm$	$(4mm, 111)$	19	$P4_2nm(00\gamma)$	$00lm$: $l = 2n$; $0klm$: $k + l = 2n$
102.2			19	$P4_2nm(00\gamma)0ss$	$00lm$: $l = 2n$; $0klm$: $k + l + m = 2n$; $hhlm$: $m = 2n$
102.3			20	$P4_2nm(\frac{1}{2}\frac{1}{2}\gamma)qq0$	$00Lm$: $2L + m = 4n$; $HHLm$: $2H + 2L + m = 4n$
102.4			20	$P4_2nm(\frac{1}{2}\frac{1}{2}\gamma)qqs$	$00Lm$: $2L + m = 4n$; $HHLm$: $2H + 2L + m = 4n$; $H0Lm$: $m = 2n$
103.1	$P4cc$	$(4mm, 111)$	19	$P4cc(00\gamma)$	$0klm$: $l = 2n$; $hhlm$: $l = 2n$
103.2			19	$P4cc(00\gamma)ss0$	$00lm$: $m = 2n$; $0klm$: $l + m = 2n$; $hhlm$: $l = 2n$
103.3			20	$P4cc(\frac{1}{2}\frac{1}{2}\gamma)$	$HHLm$: $L = 2n$; $H0Lm$: $L = 2n$
104.1	$P4nc$	$(4mm, 111)$	19	$P4nc(00\gamma)$	$0klm$: $k + l = 2n$; $hhlm$: $l = 2n$
104.2			19	$P4nc(00\gamma)ss0$	$00lm$: $m = 2n$; $0klm$: $k + l + m = 2n$; $hhlm$: $l = 2n$
104.3			20	$P4nc(\frac{1}{2}\frac{1}{2}\gamma)qq0$	$00Lm$: $m = 4n$; $HHLm$: $2H + 2L + m = 4n$; $H0Lm$: $L = 2n$
105.1	$P4_2mc$	$(4mm, 111)$	19	$P4_2mc(00\gamma)$	$00lm$: $l = 2n$; $hhlm$: $l = 2n$
105.2			19	$P4_2mc(00\gamma)ss0$	$00lm$: $l + m = 2n$; $0klm$: $m = 2n$; $hhlm$: $l = 2n$
105.3			20	$P4_2mc(\frac{1}{2}\frac{1}{2}\gamma)$	$00Lm$: $L = 2n$; $H0Lm$: $L = 2n$
106.1	$P4_2bc$	$(4mm, 111)$	19	$P4_2bc(00\gamma)$	$00lm$: $l = 2n$; $0klm$: $k = 2n$; $hhlm$: $l = 2n$
106.2			19	$P4_2bc(00\gamma)ss0$	$00lm$: $l + m = 2n$; $0klm$: $k + m = 2n$; $hhlm$: $l = 2n$
106.3			20	$P4_2bc(\frac{1}{2}\frac{1}{2}\gamma)qq0$	$00Lm$: $2L + m = 4n$; $HHLm$: $2H + m = 4n$; $H0Lm$: $L = 2n$
107.1	$I4mm$	$(4mm, 111)$	21	$I4mm(00\gamma)$	
107.2			21	$I4mm(00\gamma)ss0$	$00lm$: $m = 2n$; $0klm$: $m = 2n$
107.3			21	$I4mm(00\gamma)0ss$	$0klm$: $m = 2n$; $hhlm$: $m = 2n$

Table 9.8.3.5. (3 + 1)-*Dimensional superspace groups (cont.)*

No.	Basic space group	Point group K_s	Bravais class No.	Group symbol	Special reflection conditions
107.4			21	$I4mm(00\gamma)s0s$	$00lm$: $m=2n$; $hhlm$: $m=2n$
108.1	$I4cm$	$(4mm, 111)$	21	$I4cm(00\gamma)$	$0klm$: $l=2n$
108.2			21	$I4cm(00\gamma)ss0$	$00lm$: $m=2n$; $0klm$: $l+m=2n$
108.3			21	$I4cm(00\gamma)0ss$	$0klm$: $l+m=2n$; $hhlm$: $m=2n$
108.4			21	$I4cm(00\gamma)s0s$	$00lm$: $m=2n$; $0klm$: $l=2n$; $hhlm$: $m=2n$
109.1	$I4_1md$	$(4mm, 111)$	21	$I4_1md(00\gamma)$	$00lm$: $l=4n$; $hhlm$: $2h+l=4n$
109.2			21	$I4_1md(00\gamma)ss0$	$00lm$: $l+2m=4n$; $0klm$: $m=2n$; $hhlm$: $2h+l=4n$
110.1	$I4_1cd$	$(4mm, 111)$	21	$I4_1cd(00\gamma)$	$00lm$: $l=4n$; $0klm$: $l=2n$; $hhlm$: $2h+l=4n$
110.2			21	$I4_1cd(00\gamma)ss0$	$00lm$: $l+2m=4n$; $0klm$: $l+m=2n$; $hhlm$: $2h+l=4n$
111.1	$P\bar{4}2m$	$(\bar{4}2m, \bar{1}\bar{1}1)$	19	$P\bar{4}2m(00\gamma)$	
111.2			19	$P\bar{4}2m(00\gamma)00s$	$hhlm$: $m=2n$
111.3			20	$P\bar{4}2m(\frac{1}{2}\frac{1}{2}\gamma)$	
111.4			20	$P\bar{4}2m(\frac{1}{2}\frac{1}{2}\gamma)00s$	$H0Lm$: $m=2n$
112.1	$P\bar{4}2c$	$(\bar{4}2m, \bar{1}\bar{1}1)$	19	$P\bar{4}2c(00\gamma)$	$hhlm$: $l=2n$
112.2			20	$P\bar{4}2c(\frac{1}{2}\frac{1}{2}\gamma)$	$H0Lm$: $L=2n$
113.1	$P\bar{4}2_1m$	$(\bar{4}2m, \bar{1}\bar{1}1)$	19	$P\bar{4}2_1m(00\gamma)$	$h000$: $h=2n$
113.2			19	$P\bar{4}2_1m(00\gamma)00s$	$h000$: $h=2n$; $hhlm$: $m=2n$
114.1	$P\bar{4}2_1c$	$(\bar{4}2m, \bar{1}\bar{1}1)$	19	$P\bar{4}2_1c(00\gamma)$	$h000$: $h=2n$; $hhlm$: $l=2n$
115.1	$P\bar{4}m2$	$(\bar{4}m2, \bar{1}1\bar{1})$	19	$P\bar{4}m2(00\gamma)$	
115.2			19	$P\bar{4}m2(00\gamma)0s0$	$0klm$: $m=2n$
115.3			20	$P\bar{4}m2(\frac{1}{2}\frac{1}{2}\gamma)$	
116.1	$P\bar{4}c2$	$(\bar{4}m2, \bar{1}1\bar{1})$	19	$P\bar{4}c2(00\gamma)$	$0klm$: $l=2n$
116.2			20	$P\bar{4}c2(\frac{1}{2}\frac{1}{2}\gamma)$	$HHLm$: $L=2n$
117.1	$P\bar{4}b2$	$(\bar{4}m2, \bar{1}1\bar{1})$	19	$P\bar{4}b2(00\gamma)$	$0klm$: $k=2n$
117.2			19	$P\bar{4}b2(00\gamma)0s0$	$0klm$: $k+m=2n$
117.3			20	$P\bar{4}b2(\frac{1}{2}\frac{1}{2}\gamma)0q0$	$HHLm$: $2H+m=4n$
118.1	$P\bar{4}n2$	$(\bar{4}m2, \bar{1}1\bar{1})$	19	$P\bar{4}n2(00\gamma)$	$0klm$: $k+l=2n$
118.2			20	$P\bar{4}n2(\frac{1}{2}\frac{1}{2}\gamma)0q0$	$HHLm$: $2H+2L+m=4n$
119.1	$I\bar{4}m2$	$(\bar{4}m2, \bar{1}1\bar{1})$	21	$I\bar{4}m2(00\gamma)$	
119.2			21	$I\bar{4}m2(00\gamma)0s0$	$0klm$: $m=2n$
120.1	$I\bar{4}c2$	$(\bar{4}m2, \bar{1}1\bar{1})$	21	$I\bar{4}c2(00\gamma)$	$0klm$: $l=2n$
120.2			21	$I\bar{4}c2(00\gamma)0s0$	$0klm$: $l+m=2n$
121.1	$I\bar{4}2m$	$(\bar{4}2m, \bar{1}\bar{1}1)$	21	$I\bar{4}2m(00\gamma)$	
121.2			21	$I\bar{4}2m(00\gamma)00s$	$hhlm$: $m=2n$
122.1	$I\bar{4}2d$	$(\bar{4}2m, \bar{1}\bar{1}1)$	21	$I\bar{4}2d(00\gamma)$	$hhlm$: $2h+l=4n$
123.1	$P4/mmm$	$(4/mmm, 1\bar{1}11)$	19	$P4/mmm(00\gamma)$	
123.2			19	$P4/mmm(00\gamma)s0s0$	$00lm$: $m=2n$; $0klm$: $m=2n$
123.3			19	$P4/mmm(00\gamma)00ss$	$0klm$: $m=2n$; $hhlm$: $m=2n$
123.4			19	$P4/mmm(00\gamma)s00s$	$00lm$: $m=2n$; $hhlm$: $m=2n$
123.5			20	$P4/mmm(\frac{1}{2}\frac{1}{2}\gamma)$	
123.6			20	$P4/mmm(\frac{1}{2}\frac{1}{2}\gamma)00ss$	$HHLm$: $m=2n$; $H0Lm$: $m=2n$
124.1	$P4/mcc$	$(4/mmm, 1\bar{1}11)$	19	$P4/mcc(00\gamma)$	$0klm$: $l=2n$; $hhlm$: $l=2n$
124.2			19	$P4/mcc(00\gamma)s0s0$	$00lm$: $m=2n$; $0klm$: $l+m=2n$; $hhlm$: $l=2n$
124.3			20	$P4/mcc(\frac{1}{2}\frac{1}{2}\gamma)$	$HHLm$: $L=2n$; $H0Lm$: $L=2n$
125.1	$P4/nbm$	$(4/mmm, 1\bar{1}11)$	19	$P4/nbm(00\gamma)$	$hk00$: $h+k=2n$; $0klm$: $k=2n$
125.2			19	$P4/nbm(00\gamma)s0s0$	$00lm$: $m=2n$; $hk00$: $h+k=2n$; $0klm$: $k+m=2n$
125.3			19	$P4/nbm(00\gamma)00ss$	$hk00$: $h+k=2n$; $0klm$: $k+m=2n$; $hhlm$: $m=2n$
125.4			19	$P4/nbm(00\gamma)s00s$	$00lm$: $m=2n$; $hk00$: $h+k=2n$; $0klm$: $k=2n$; $hhlm$: $m=2n$
125.5			20	$P4/nbm(\frac{1}{2}\frac{1}{2}\gamma)q0q0$	$00Lm$: $m=4n$; $HK00$: $H=2n, K=2n$; $HHLm$: $2H+m=4n$
125.6			20	$P4/nbm(\frac{1}{2}\frac{1}{2}\gamma)q0qs$	$00Lm$: $m=4n$; $HK00$: $H=2n, K=2n$; $HHLm$: $2H+m=4n$; $H0Lm$: $m=2n$
126.1	$P4/nnc$	$(4/mmm, 1\bar{1}11)$	19	$P4/nnc(00\gamma)$	$hk00$: $h+k=2n$; $h0lm$: $h+l=2n$; $hhlm$: $l=2n$
126.2			19	$P4/nnc(00\gamma)s0s0$	$00lm$: $m=2n$; $hk00$: $h+k=2n$; $h0lm$: $h+l+m=2n$; $hhlm$: $l=2n$
126.3			20	$P4/nnc(\frac{1}{2}\frac{1}{2}\gamma)q0q0$	$00Lm$: $m=4n$; $HK00$: $H=2n, K=2n$; $HHLm$: $2H+2L+m=4n$; $H0Lm$: $L=2n$
127.1	$P4/mbm$	$(4/mmm, 1\bar{1}11)$	19	$P4/mbm(00\gamma)$	$0klm$: $k=2n$
127.2			19	$P4/mbm(00\gamma)s0s0$	$00lm$: $m=2n$; $0klm$: $k+m=2n$
127.3			19	$P4/mbm(00\gamma)00ss$	$0klm$: $k+m=2n$; $hhlm$: $m=2n$
127.4			19	$P4/mbm(00\gamma)s00s$	$00lm$: $m=2n$; $0klm$: $k=2n$; $hhlm$: $m=2n$
128.1	$P4/mnc$	$(4/mmm, 1\bar{1}11)$	19	$P4/mnc(00\gamma)$	$0klm$: $k+l=2n$; $hhlm$: $l=2n$
128.2			19	$P4/mnc(00\gamma)s0s0$	$00lm$: $m=2n$; $0klm$: $k+l+m=2n$; $hhlm$: $l=2n$
129.1	$P4/nmm$	$(4/mmm, 1\bar{1}11)$	19	$P4/nmm(00\gamma)$	$hk00$: $h+k=2n$

Table 9.8.3.5. (3 + 1)-*Dimensional superspace groups (cont.)*

No.	Basic space group	Point group K_s	Bravais class No.	Group symbol	Special reflection conditions
129.2			19	$P4/nmm(00\gamma)s0s0$	$00lm$: $m=2n$; $hk00$: $h+k=2n$; $0klm$: $m=2n$
129.3			19	$P4/nmm(00\gamma)00ss$	$hk00$: $h+k=2n$; $0klm$: $m=2n$; $hhlm$: $m=2n$
129.4			19	$P4/nmm(00\gamma)s00s$	$00lm$: $m=2n$; $hk00$: $h+k=2n$; $hhlm$: $m=2n$
130.1	$P4/ncc$	$(4/mmm, 1\bar{1}11)$	19	$P4/ncc(00\gamma)$	$hk00$: $h+k=2n$; $0klm$: $l=2n$; $hhlm$: $l=2n$
130.2			19	$P4/ncc(00\gamma)s0s0$	$00lm$: $m=2n$; $hk00$: $h+k=2n$; $0klm$: $l+m=2n$; $hhlm$: $l=2n$
131.1	$P4_2/mmc$	$(4/mmm, 1\bar{1}11)$	19	$P4_2/mmc(00\gamma)$	$00lm$: $l=2n$; $hhlm$: $l=2n$
131.2			19	$P4_2/mmc(00\gamma)s0s0$	$00lm$: $l+m=2n$; $0klm$: $m=2n$; $hhlm$: $l=2n$
131.3			20	$P4_2/mmc(\frac{1}{2}\frac{1}{2}\gamma)$	$00Lm$: $L=2n$; $H0Lm$: $L=2n$
132.1	$P4_2/mcm$	$(4/mmm, 1\bar{1}11)$	19	$P4_2/mcm(00\gamma)$	$00lm$: $l=2n$; $0klm$: $l=2n$
132.2			19	$P4_2/mcm(00\gamma)00ss$	$00lm$: $l=2n$; $0klm$: $l+m=2n$; $hhlm$: $m=2n$
132.3			20	$P4_2/mcm(\frac{1}{2}\frac{1}{2}\gamma)$	$00Lm$: $L=2n$; $HHLm$: $L=2n$
132.4			20	$P4_2/mcm(\frac{1}{2}\frac{1}{2}\gamma)00ss$	$00Lm$: $L=2n$; $HHLm$: $L+m=2n$; $H0Lm$: $m=2n$
133.1	$P4_2/nbc$	$(4/mmm, 1\bar{1}11)$	19	$P4_2/nbc(00\gamma)$	$00lm$: $l=2n$; $hk00$: $h+k=2n$; $0klm$: $k=2n$; $hhlm$: $l=2n$
133.2			19	$P4_2/nbc(00\gamma)s0s0$	$00lm$: $l+m=2n$; $hk00$: $h+k=2n$; $0klm$: $k+m=2n$; $hhlm$: $l=2n$
133.3			20	$P4_2/nbc(\frac{1}{2}\frac{1}{2}\gamma)q0q0$	$00Lm$: $2L+m=4n$; $HK00$: $H=2n$, $K=2n$; $HHLm$: $2H+m=4n$; $H0Lm$: $L=2n$
134.1	$P4_2/nnm$	$(4/mmm, 1\bar{1}11)$	19	$P4_2/nnm(00\gamma)$	$00lm$: $l=2n$; $hk00$: $h+k=2n$; $0klm$: $k+l=2n$
134.2			19	$P4_2/nnm(00\gamma)00ss$	$00lm$: $l=2n$; $hk00$: $h+k=2n$; $0klm$: $k+l+m=2n$; $hhlm$: $m=2n$
134.3			20	$P4_2/nnm(\frac{1}{2}\frac{1}{2}\gamma)q0q0$	$00Lm$: $2L+m=4n$; $HK00$: $H=2n$, $K=2n$; $HHLm$: $2H+2L+m=4n$
134.4			20	$P4_2/nnm(\frac{1}{2}\frac{1}{2}\gamma)q0qs$	$00Lm$: $2L+m=4n$; $HK00$: $H+K=2n$; $HHLm$: $2H+2L+m=4n$; $H0Lm$: $m=2n$
135.1	$P4_2/mbc$	$(4/mmm, 1\bar{1}11)$	19	$P4_2/mbc(00\gamma)$	$00lm$: $l=2n$; $0klm$: $k=2n$; $hhlm$: $l=2n$
135.2			19	$P4_2/mbc(00\gamma)s0s0$	$00lm$: $l+m=2n$; $0klm$: $k+m=2n$; $hhlm$: $l=2n$
136.1	$P4_2/mnm$	$(4/mmm, 1\bar{1}11)$	19	$P4_2/mnm(00\gamma)$	$00lm$: $l=2n$; $0klm$: $k+l=2n$
136.2			19	$P4_2/mnm(00\gamma)00ss$	$00lm$: $l=2n$; $0klm$: $k+l+m=2n$; $hhlm$: $m=2n$
137.1	$P4_2/nmc$	$(4/mmm, 1\bar{1}11)$	19	$P4_2/nmc(00\gamma)$	$00lm$: $l=2n$; $hk00$: $h+k=2n$; $hhlm$: $l=2n$
137.2			19	$P4_2/nmc(00\gamma)s0s0$	$00lm$: $l+m=2n$; $hk00$: $h+k=2n$; $0klm$: $m=2n$; $hhlm$: $l=2n$
138.1	$P4_2/ncm$	$(4/mmm, 1\bar{1}11)$	19	$P4_2/ncm(00\gamma)$	$00lm$: $l=2n$; $hk00$: $h+k=2n$; $0klm$: $l=2n$
138.2			19	$P4_2/ncm(00\gamma)00ss$	$00lm$: $l=2n$; $hk00$: $h+k=2n$; $0klm$: $l+m=2n$; $hhlm$: $m=2n$
139.1	$I4/mmm$	$(4/mmm, 1\bar{1}11)$	21	$I4/mmm(00\gamma)$	
139.2			21	$I4/mmm(00\gamma)s0s0$	$00lm$: $m=2n$; $0klm$: $m=2n$
139.3			21	$I4/mmm(00\gamma)00ss$	$0klm$: $m=2n$; $hhlm$: $m=2n$
139.4			21	$I4/mmm(00\gamma)s00s$	$00lm$: $m=2n$; $hhlm$: $m=2n$
140.1	$I4/mcm$	$(4/mmm, 1\bar{1}11)$	21	$I4/mcm(00\gamma)$	$0klm$: $l=2n$
140.2			21	$I4/mcm(00\gamma)s0s0$	$00lm$: $m=2n$; $0klm$: $l+m=2n$
140.3			21	$I4/mcm(00\gamma)00ss$	$0klm$: $l+m=2n$; $hhlm$: $m=2n$
140.4			21	$I4/mcm(00\gamma)s00s$	$00lm$: $m=2n$; $0klm$: $l=2n$; $hhlm$: $m=2n$
141.1	$I4_1/amd$	$(4/mmm, 1\bar{1}11)$	21	$I4_1/amd(00\gamma)$	$00lm$: $l=4n$; $hk00$: $h=2n$; $hhlm$: $2h+l=4n$
141.2			21	$I4_1/amd(00\gamma)s0s0$	$00lm$: $l+2m=4n$; $hk00$: $h=2n$; $0klm$: $m=2n$; $hhlm$: $2h+l=4n$
142.1	$I4_1/acd$	$(4/mmm, 1\bar{1}11)$	21	$I4_1/acd(00\gamma)$	$00lm$: $l=4n$; $hk00$: $h=2n$; $0klm$: $l=2n$; $hhlm$: $2h+l=4n$
142.2			21	$I4_1/acd(00\gamma)s0s0$	$00lm$: $l+2m=4n$; $hk00$: $h=2n$; $0klm$: $l+m=2n$; $hhlm$: $2h+l=4n$
143.1	$P3$	$(3, 1)$	23	$P3(\frac{1}{3}\frac{1}{3}\gamma)$	
143.2			24	$P3(00\gamma)$	
143.3			24	$P3(00\gamma)t$	$00lm$: $m=3n$
144.1	$P3_1$	$(3, 1)$	23	$P3_1(\frac{1}{3}\frac{1}{3}\gamma)$	$00Lm$: $L=3n$
144.2			24	$P3_1(00\gamma)$	$00lm$: $l=3n$
145.1	$P3_2$	$(3, 1)$	23	$P3_2(\frac{1}{3}\frac{1}{3}\gamma)$	$00Lm$: $L=3n$
145.2			24	$P3_2(00\gamma)$	$00lm$: $l=3n$
146.1	$R3$	$(3, 1)$	22	$R3(00\gamma)$	
146.2			22	$R3(00\gamma)t$	$00lm$: $m=3n$
147.1	$P\bar{3}$	$(\bar{3}, \bar{1})$	23	$P\bar{3}(\frac{1}{3}\frac{1}{3}\gamma)$	
147.2			24	$P\bar{3}(00\gamma)$	
148.1	$R\bar{3}$	$(\bar{3}, \bar{1})$	22	$R\bar{3}(00\gamma)$	
149.1	$P312$	$(312, 11\bar{1})$	23	$P312(\frac{1}{3}\frac{1}{3}\gamma)$	
149.2			24	$P312(00\gamma)$	

Table 9.8.3.5. (3 + 1)-*Dimensional superspace groups (cont.)*

No.	Basic space group	Point group K_s	Bravais class No.	Group symbol	Special reflection conditions
149.3			24	$P312(00\gamma)t00$	$00lm$: $m=3n$
150.1	$P321$	$(321, 1\bar{1}1)$	24	$P321(00\gamma)$	
150.2			24	$P321(00\gamma)t00$	$00lm$: $m=3n$
151.1	$P3_112$	$(312, 11\bar{1})$	23	$P3_112(\frac{1}{3}\frac{1}{3}\gamma)$	$00Lm$: $L=3n$
151.2			24	$P3_112(00\gamma)$	$00lm$: $l=3n$
152.1	$P3_121$	$(321, 1\bar{1}1)$	24	$P3_121(00\gamma)$	$00lm$: $l=3n$
153.1	$P3_212$	$(312, 11\bar{1})$	23	$P3_212(\frac{1}{3}\frac{1}{3}\gamma)$	
153.2			24	$P3_212(00\gamma)$	$00lm$: $l=3n$
154.1	$P3_221$	$(321, 1\bar{1}1)$	24	$P3_221(00\gamma)$	$00lm$: $l=3n$
155.1	$R32$	$(32, 1\bar{1})$	22	$R32(00\gamma)$	
155.2			22	$R32(00\gamma)t0$	$00lm$: $m=3n$
156.1	$P3m1$	$(3m1, 111)$	24	$P3m1(00\gamma)$	
156.2			24	$P3m1(00\gamma)0s0$	$0klm$: $m=2n$
157.1	$P31m$	$(31m, 111)$	23	$P31m(\frac{1}{3}\frac{1}{3}\gamma)$	
157.2			23	$P31m(\frac{1}{3}\frac{1}{3}\gamma)00s$	$H\bar{H}Lm$: $m=2n$
157.3			24	$P31m(00\gamma)$	
157.4			24	$P31m(00\gamma)00s$	$hhlm$: $m=2n$
158.1	$P3c1$	$(3m1, 111)$	24	$P3c1(00\gamma)$	$0klm$: $l=2n$
159.1	$P31c$	$(31m, 111)$	23	$P31c(\frac{1}{3}\frac{1}{3}\gamma)$	$H\bar{H}Lm$: $L=2n$
159.2			24	$P31c(00\gamma)$	$hhlm$: $l=2n$
160.1	$R3m$	$(3m, 11)$	22	$R3m(00\gamma)$	
160.2			22	$R3m(00\gamma)0s$	$hhlm$: $m=2n$
161.1	$R3c$	$(3m, 11)$	22	$R3c(00\gamma)$	$hhlm$: $l=2n$
162.1	$P\bar{3}1m$	$(\bar{3}1m, \bar{1}11)$	23	$P\bar{3}1m(\frac{1}{3}\frac{1}{3}\gamma)$	
162.2			23	$P\bar{3}1m(\frac{1}{3}\frac{1}{3}\gamma)00s$	$H\bar{H}Lm$: $m=2n$
162.3			24	$P\bar{3}1m(00\gamma)$	
162.4			24	$P\bar{3}1m(00\gamma)00s$	$hhlm$: $m=2n$
163.1	$P\bar{3}1c$	$(\bar{3}1m, \bar{1}11)$	23	$P\bar{3}1c(\frac{1}{3}\frac{1}{3}\gamma)$	$H\bar{H}Lm$: $L=2n$
163.2			24	$P\bar{3}1c(00\gamma)$	$hhlm$: $l=2n$
164.1	$P\bar{3}m1$	$(\bar{3}m1, \bar{1}11)$	24	$P\bar{3}m1(00\gamma)$	
164.2			24	$P\bar{3}m1(00\gamma)0s0$	$0klm$: $m=2n$
165.1	$P\bar{3}c1$	$(\bar{3}m1, \bar{1}11)$	24	$P\bar{3}c1(00\gamma)$	$0klm$: $l=2n$
166.1	$R\bar{3}m$	$(\bar{3}m, \bar{1}1)$	22	$R\bar{3}m(00\gamma)$	
166.2			22	$R\bar{3}m(00\gamma)0s$	$hhlm$: $m=2n$
167.1	$R\bar{3}c$	$(\bar{3}m, \bar{1}1)$	22	$R\bar{3}c(00\gamma)$	$hhlm$: $l=2n$
168.1	$P6$	$(6, 1)$	24	$P6(00\gamma)$	
168.2			24	$P6(00\gamma)h$	$00lm$: $m=6n$
168.3			24	$P6(00\gamma)t$	$00lm$: $m=3n$
168.4			24	$P6(00\gamma)s$	$00lm$: $m=2n$
169.1	$P6_1$	$(6, 1)$	24	$P6_1(00\gamma)$	$00lm$: $l=6n$
170.1	$P6_5$	$(6, 1)$	24	$P6_5(00\gamma)$	$00lm$: $l=6n$
171.1	$P6_2$	$(6, 1)$	24	$P6_2(00\gamma)$	$00lm$: $l=3n$
171.2			24	$P6_2(00\gamma)h$	$00lm$: $2l+m=6n$
172.1	$P6_4$	$(6, 1)$	24	$P6_4(00\gamma)$	$00lm$: $l=3n$
172.2			24	$P6_4(00\gamma)h$	$00lm$: $2l+m=6n$
173.1	$P6_3$	$(6, 1)$	24	$P6_3(00\gamma)$	$00lm$: $l=2n$
173.2			24	$P6_3(00\gamma)h$	$00lm$: $3l+m=6n$
174.1	$P\bar{6}$	$(\bar{6}, \bar{1})$	24	$P\bar{6}(00\gamma)$	
175.1	$P6/m$	$(6/m, 1\bar{1})$	24	$P6/m(00\gamma)$	
175.2			24	$P6/m(00\gamma)s0$	$00lm$: $m=2n$
176.1	$P6_3/m$	$(6/m, 1\bar{1})$	24	$P6_3/m(00\gamma)$	$00lm$: $l=2n$
177.1	$P622$	$(622, 1\bar{1}\bar{1})$	24	$P622(00\gamma)$	
177.2			24	$P622(00\gamma)h00$	$00lm$: $m=6n$
177.3			24	$P622(00\gamma)t00$	$00lm$: $m=3n$
177.4			24	$P622(00\gamma)s00$	$00lm$: $m=2n$
178.1	$P6_122$	$(622, 1\bar{1}\bar{1})$	24	$P6_122(00\gamma)$	$00lm$: $l=6n$
179.1	$P6_522$	$(622, 1\bar{1}\bar{1})$	24	$P6_522(00\gamma)$	$00lm$: $l=6n$
180.1	$P6_222$	$(622, 1\bar{1}\bar{1})$	24	$P6_222(00\gamma)$	$00lm$: $l=3n$
180.2			24	$P6_222(00\gamma)h00$	$00lm$: $2l+m=6n$
181.1	$P6_422$	$(622, 1\bar{1}\bar{1})$	24	$P6_422(00\gamma)$	$00lm$: $l=3n$
181.2			24	$P6_422(00\gamma)h00$	$00lm$: $2l+m=6n$
182.1	$P6_322$	$(622, 1\bar{1}\bar{1})$	24	$P6_322(00\gamma)$	
182.2			24	$P6_322(00\gamma)h00$	$00lm$: $3l+m=6n$
183.1	$P6mm$	$(6mm, 111)$	24	$P6mm(00\gamma)$	
183.2			24	$P6mm(00\gamma)ss0$	$00lm$: $m=2n$; $0klm$: $m=2n$

Table 9.8.3.5. (3 + 1)-*Dimensional superspace groups (cont.)*

No.	Basic space group	Point group K_s	Bravais class No.	Group symbol	Special reflection conditions
183.3			24	$P6mm(00\gamma)0ss$	$0klm$: $m=2n$; $hhlm$: $m=2n$
183.4			24	$P6mm(00\gamma)s0s$	$00lm$: $m=2n$; $hhlm$: $m=2n$
184.1	$P6cc$	$(6mm, 111)$	24	$P6cc(00\gamma)$	$0klm$: $l=2n$; $hhlm$: $l=2n$
184.2			24	$P6cc(00\gamma)s0s$	$00lm$: $m=2n$; $0klm$: $l=2n$; $hhlm$: $l+m=2n$
185.1	$P6_3cm$	$(6mm, 111)$	24	$P6_3cm(00\gamma)$	$00lm$: $l=2n$; $0klm$: $l=2n$
185.2			24	$P6_3cm(00\gamma)0ss$	$00lm$: $l=2n$; $0klm$: $l+m=2n$; $hhlm$: $m=2n$
186.1	$P6_3mc$	$(6mm, 111)$	24	$P6_3mc(00\gamma)$	$00lm$: $l=2n$; $hhlm$: $l=2n$
186.2			24	$P6_3mc(00\gamma)0ss$	$00lm$: $l=2n$; $0klm$: $m=2n$; $hhlm$: $l+m=2n$
187.1	$P\bar{6}m2$	$(\bar{6}m2, \bar{1}1\bar{1})$	24	$P\bar{6}m2(00\gamma)$	
187.2			24	$P\bar{6}m2(00\gamma)0s0$	$0klm$: $m=2n$
188.1	$P\bar{6}c2$	$(\bar{6}m2, \bar{1}1\bar{1})$	24	$P\bar{6}c2(00\gamma)$	$0klm$: $l=2n$
189.1	$P\bar{6}2m$	$(\bar{6}2m, \bar{1}\bar{1}1)$	24	$P\bar{6}2m(00\gamma)$	
189.2			24	$P\bar{6}2m(00\gamma)00s$	$hhlm$: $m=2n$
190.1	$P\bar{6}2c$	$(\bar{6}2m, \bar{1}\bar{1}1)$	24	$P\bar{6}2c(00\gamma)$	$hhlm$: $l=2n$
191.1	$P6/mmm$	$(6/mmm, 1\bar{1}11)$	24	$P6/mmm(00\gamma)$	
191.2			24	$P6/mmm(00\gamma)s0s0$	$00lm$: $m=2n$; $0klm$: $m=2n$
191.3			24	$P6/mmm(00\gamma)00ss$	$0klm$: $m=2n$; $hhlm$: $m=2n$
191.4			24	$P6/mmm(00\gamma)s00s$	$00lm$: $m=2n$; $hhlm$: $m=2n$
192.1	$P6/mcc$	$(6/mmm, 1\bar{1}11)$	24	$P6/mcc(00\gamma)$	$0klm$: $l=2n$; $hhlm$: $l=2n$
192.2			24	$P6/mcc(00\gamma)s00s$	$00lm$: $m=2n$; $0klm$: $l=2n$; $hhlm$: $l+m=2n$
193.1	$P6_3/mcm$	$(6/mmm, 1\bar{1}11)$	24	$P6_3/mcm(00\gamma)$	$00lm$: $l=2n$; $0klm$: $l=2n$
193.2			24	$P6_3/mcm(00\gamma)00ss$	$00lm$: $l=2n$; $0klm$: $l+m=2n$; $hhlm$: $m=2n$
194.1	$P6_3/mmc$	$(6/mmm, 1\bar{1}11)$	24	$P6_3/mmc(00\gamma)$	$00lm$: $l=2n$; $hhlm$: $l=2n$
194.2			24	$P6_3/mmc(00\gamma)00ss$	$00lm$: $l=2n$; $0klm$: $m=2n$; $hhlm$: $l+m=2n$

primitive translations in the (3 + 1)-dimensional space group, just as is the case for glide planes and screw axes in three dimensions.

Special reflection conditions can be derived from transformation properties of the structure factor under symmetry operations. Transforming the geometric structure factor by an element $g_s = (\{R|\mathbf{v}\}, \{R_I|\upsilon_I\})$, one obtains

$$S_{\mathbf{H}} = S_{R^{-1}\mathbf{H}} \exp[-2\pi i(\mathbf{H}\cdot\mathbf{v} + H_I\cdot\upsilon_I)]. \qquad (9.8.3.10)$$

Therefore, if $R\mathbf{H} = \mathbf{H}$, the corresponding structure factor vanishes unless $\mathbf{H}\cdot\mathbf{v} + H_I\cdot\upsilon_I$ is an integer.

The form of such a reflection condition in terms of allowed or forbidden sets of indices depends on the basis chosen. When a lattice basis is chosen, one has

$$H_s = (\mathbf{H}, H_I) = \sum_{i=1}^{4} h_i\mathbf{a}_{si}^*, \qquad (9.8.3.11)$$

$$\upsilon_s = (\mathbf{v}, \upsilon_I) + \sum_{i=1}^{4} \upsilon_i\mathbf{a}_{si}. \qquad (9.8.3.12)$$

Then the reflection condition becomes

$$H_s\cdot\upsilon_s = \sum_{i=1}^{4} h_i\upsilon_i = \text{integer} \quad \text{for } R\mathbf{H} = \mathbf{H}. \qquad (9.8.3.13)$$

In terms of external and internal shift components, the reflection condition can be written as

$$H_s\cdot\upsilon_s = \mathbf{H}\cdot\mathbf{v} + H_I\cdot\upsilon_I = \mathbf{H}\cdot\mathbf{v} + m\upsilon_I = \text{integer for } R\mathbf{H} = \mathbf{H}. \qquad (9.8.3.14)$$

With $\mathbf{H} = \mathbf{K} + m\mathbf{q}$ and $\upsilon_I = \delta - \mathbf{q}\cdot\mathbf{v}$, (9.8.3.14) gives

$$\mathbf{K}\cdot\mathbf{v} + m\delta = \text{integer} \quad \text{for } R\mathbf{H} = \mathbf{H}. \qquad (9.8.3.15)$$

For $\mathbf{v} = \upsilon_1\mathbf{a} + \upsilon_2\mathbf{b} + \upsilon_3\mathbf{c}$ and $\mathbf{K} = h\mathbf{a}^* + k\mathbf{b}^* + l\mathbf{c}^*$, (9.8.3.15) takes the form (9.8.3.13):

$$h\upsilon_1 + k\upsilon_2 + l\upsilon_3 + m\delta = \text{integer} \quad \text{for } R\mathbf{H} = \mathbf{H}. \qquad (9.8.3.16)$$

When the modulation wavevector has a rational part, one can choose another basis (Subsection 9.8.2.1) such that $\mathbf{K}' = \mathbf{K} + m\mathbf{q}^r$ has integer coefficients:

$$\mathbf{H} = \mathbf{K}' + m\mathbf{q}^i = H\mathbf{a}_c^* + K\mathbf{b}_c^* + L\mathbf{c}_c^* + m\mathbf{q}^i.$$

Then, (9.8.3.15) with $\tau = \delta - \mathbf{q}^r\cdot\mathbf{v}$ becomes

$$\mathbf{K}'\cdot\mathbf{v} + m\tau = \text{integer} \quad \text{for } R\mathbf{H} = \mathbf{H} \qquad (9.8.3.17)$$

and (9.8.3.16) transforms into

$$H\upsilon_1' + K\upsilon_2' + L\upsilon_3' + m\tau = \text{integer} \quad \text{for } R\mathbf{H} = \mathbf{H}, \qquad (9.8.3.18)$$

in which υ_1', υ_2', and υ_3' are the components of $\mathbf{v}$ with respect to the basis $\mathbf{a}_c$, $\mathbf{b}_c$, and $\mathbf{c}_c$.

As an example, consider a (3 + 1)-dimensional space-group transformation with R a mirror perpendicular to the x axis, $\varepsilon = 1$, $\mathbf{v} = \frac{1}{2}\mathbf{b}$, and $\tau = \frac{1}{4}$ with $\mathbf{b}$ orthogonal to $\mathbf{a}$. The modulation wavevector is supposed to be $(\frac{1}{2}\frac{1}{2}\gamma)$. Then $\delta = \frac{1}{4} + \mathbf{q}^r\cdot\mathbf{v} = \frac{1}{2}$. The vectors $\mathbf{H}$ left invariant by R satisfy the relation $2h + m = 0$. For such a vector, the reflection condition becomes

$$\mathbf{K}\cdot\mathbf{v} + m\delta = \tfrac{1}{2}\mathbf{K}\cdot\mathbf{b} + \tfrac{1}{2}m = \frac{k+m}{2} = \text{integer}, \quad \text{or } k + m = 2n.$$

For the basis $\frac{1}{2}(\mathbf{a}^* + \mathbf{b}^*)$, $\frac{1}{2}(\mathbf{a}^* - \mathbf{b}^*)$, $\mathbf{c}^*$, the rational part of the wavevector vanishes. The indices with respect to this basis are $H = h + k + m$, $K = h - k$, $L = l$ and m. The condition now becomes

$$\mathbf{K}'\cdot\mathbf{v} + m\tau = \frac{H - K + m}{4} = \text{integer},$$

$$\text{or} \quad H - K + m = 4n, \quad \text{for } K = -H.$$

Of course, both calculations give the same result: $k + m = 2n$ for $h, k, l, -2h$ and $H - K + m = 4n$ for $H, -H, L, m$.

references