

## International Union of Crystallography

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### *International Tables for Crystallography* Volume A: *Space-Group Symmetry* Third, revised edition.

The third, revised edition of *International Tables for Crystallography*, Volume A: *Space-Group Symmetry* (1992) has recently been published by Kluwer Academic Publishers, PO Box 17, 3300 AA Dordrecht, The Netherlands. The main feature of the third edition is the incorporation of new diagrams for the tetragonal and, in particular, for the cubic space groups. With these additions this volume contains new diagrams for the plane groups and for all tetragonal, trigonal, hexagonal, and cubic space groups.

The cubic diagrams have been thoroughly re-designed. They contain, among others, new symbols for the 'inclined' two- and threefold axes, explicit graphical indication of the horizontal 4-axes (rather than their twofold 'subaxes'), complete sets of 'heights' (fractions) for the horizontal fourfold axes and for the 4-inversion points, as well as for the symmetries  $4_2/m$  and  $6_3/m$  in cubic, tetragonal and hexagonal space groups. These changes have required substantial modifications in Section 1.4. This section and its footnotes should be helpful towards a better understanding of the complexities of the cubic diagrams.

Table 5.1 has been extended by one page.

A number of errors were found in the second edition and a list of errata is given below. All errata (except where indicated otherwise) have been corrected in the third, revised edition (1992).

#### Errata in Second Edition (1987, 1989)

Page	
xv	Right-hand column, line –3, change 'two sets' to 'two sets.'
6	Section 1.3, column 3 heading, change 'Generating symmetry operation' to 'Defining symmetry operation'
6	Section 1.3, column 3, line –5, change 'see (Note vii below)' to '(see Note vii below)'
12	Left-hand column, line 24, change ' <i>crystal classes</i> ' to ' <i>geometric crystal classes</i> '
12	Left-hand column, line 29, add '(For arithmetic crystal classes see Section 8.2.2).'
18	Left-hand column, line 5, add '(cf. Section 1.4).'
18	Right-hand column, line –16, change 'general position diagram' to 'general-position diagram'
19	Right-hand column, line –6, change 'general-position diagram' to 'general-position diagram (right)'
19	Right-hand column, line –5, change 'symmetry elements' to 'symmetry elements (left)'
20	Legend of Fig. 2.6.9, line 1, change 'Observe' to 'Obverse'
21	Left-hand column, lines 20 and 21, change 'vertically down the middle' to 'through the centre'
21	Left-hand column, lines 21 and 22, change 'right and left' to 'two'
22	Right-hand column, line –25, change 'part of space' to 'smallest part of space'
27	Left-hand column, line 22, change 'Systematic absences' to 'Systematic or space-group absences'
30	Left-hand column, line 9, change ' <i>structural absences</i> ' to ' <i>structural or non-space-group absences</i> '
30	Left-hand column, line 14, change 'extraordinary orbits' to 'non-characteristic orbits'
35	Right-hand column, line –7, change 'symbol of each setting' to 'symbol for each setting'
36	Left-hand column, line 35, change 'with <i>b</i> or <i>c</i> ' to 'with <i>b</i> and <i>c</i> '
37	Left-hand column, line –28, change 'descriptions' to 'description'
37	Left-hand column, line –20, change 'the space-group type; it carries' to 'the space-group type but carries'
37	Left-hand column, line –1, change '9 ( <i>Cc</i> ) and 15 ( <i>C2/c</i> )' to ' <i>Cc</i> (9) and <i>C2/c</i> (15)'
37	Right-hand column, line –10, change '1952.' to '1952; see also Table 2.16.2).'
38	Left-hand column, line 14, change 'reduced cell' to 'reduced mesh'
38	Left-hand column, line –18, change 'exist, $p1$ ' to 'exist, with Hermann–Mauguin symbols $p1$ '
†40	Table 3.1, entry Hexagonal, column 3, change ' $a = \beta = 90^\circ$ ' to ' $\alpha = \beta = 90^\circ$ '
67	Table 4.3.1, space group 223, right-hand column (Extended Hermann–Mauguin symbols), change ' $P4_2/n\bar{3}2/n$ ' to ' $P4_2/m\bar{3}2/n$ '
†78	Table 5.1 ( <i>cont.</i> ), column 1, line 13, change 'Primate' to 'Primitive'
79	Legend of Fig. 5.9, line 3, change 'the same' to 'the same.'
*224	General-position diagram, centre, change ' $1/2-$ ' to ' $1/2+$ '
238	Lower left diagram, top left corner, omit inner symbol for <i>n</i> -glide, retain only outer symbol for <i>m</i> -plane at $h = 1/4$
420	Diagram of symmetry elements, replace all symbols for $2_1$ -screws by symbols for 2-axes
†470	Line –10, change ' $P4/nbc$ ' to ' $P4_2/nbc$ '
†610	} Add 'Upper left quadrant only' underneath upper diagram
†630	
†678	
660	Line –5, change 'parallel 2 axes' to 'parallel $\bar{4}$ axes'
†677	The information for ' $24 i \dots 2$ ' should precede that for ' $24 j \dots 2$ '
682	Upper diagram, centre, change symbol '■' to '◼'
727	Left-hand column, line 5, change 'was' to 'is'

- †729 Table 8.3, column 1, insert into the third box the three lines '222,  $mm2$ ,  $mmm$ '
- 735 Right-hand column, line 10, change 'Krystalstruktur' to 'Krystalstruktur'
- †743 Table 9.2.2 (cont.), column 3, entry  $cl$ , change ' $\alpha = \beta = \gamma$ ' to ' $\alpha = \beta = \gamma = 109.5^\circ$ '
- 743 Left-hand column, line 11, change 'alternative' to 'alternative,'
- \*761  $\bar{4}2m$ , position 4  $c..m$  and  $\bar{4}m2$ , position 4  $c..m.$ , column 4, change 'dispenoid' to 'disphenoid'
- \*783 Table 10.4.2, footnote †, line 2, change 'Class  $\infty m \equiv \infty$ ' to 'Class  $\infty/m \equiv \infty$ '
- 783 Table 10.4.2, footnote ‡, line 3, change 'clas' to 'class'
- 784 Table 10.4.3, Deltoid-hexecontahedron entry, right-hand column, change '( $OkI$ ) with  $0.382|k| > |l| > 1.618|k|$ ' to '( $OkI$ ) with  $0.382|k| < |l| < 1.618|k|$ ' and change '0,y,z with  $0.382|y| > |z| > 1.618|y|$ ' to '0,y,z with  $0.382|y| < |z| < 1.618|y|$ '
- 785 Table 10.4.3, Tricosahedron entry, right-hand column, change '( $OkI$ ) with  $0.382|k| < |l|$ ' to '( $OkI$ ) with  $|l| < 0.382|k|$ ' and change '0,y,z with  $0.382|y| < |z|$ ' to '0,y,z with  $|z| < 0.382|y|$ '
- 785 Table 10.4.3, Deltoid-hexecontahedron entry, right-hand column, change '( $OkI$ ) with  $0.382|k| > |l| > 1.618|k|$ ' to '( $OkI$ ) with  $0.382|k| < |l| < 1.618|k|$ ' and change '0,y,z with  $0.382|y| > |z| > 1.618|y|$ ' to '0,y,z with  $0.382|y| < |z| < 1.618|y|$ '
- 785 Table 10.4.3, Rhomb-triacontahedron entry, change 'Icosidodecahedron' to 'Icosadodecahedron'
- 786 Legend of Fig. 10.4.1, line -1, change 'Fig. 10.4.3.' to 'Fig. 10.4.2.'
- 792 Table 10.6.1, Cubic, entry  $m\bar{3}$ , column 5, change 'Didocahedral' to 'Disdodecahedral'
- 804 Table 12.5, No. 23, column 5, change 'I2222' to 'I222'
- 827 Left-hand column, line 9, change 'Sections 8.2.7 and 8.2.8' to 'Sections 8.2.6 and 8.2.7'
- 843 Table 14.2, No. 155, entry 6f, change ' $P3\ 2yz$ ' to ' $P3x\bar{2}yz$ '
- 854 Right-hand column, line -6, change 'substances structural types' to 'substances. Structural types'
- †858 Table 15.3.2, omit rule between space groups Nos. 7 and 8
- 876 Left-hand column, entry Rotation axes and points, change '6, 9, 716' to '6, 9, 10, 716'

\* Changes not incorporated in the third, revised edition.

† Corrected in the 1989 reprint of the second edition.

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