# International Union of Crystallography

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## Commission on Journals
## Atomic Labelling

The Commission on Journals recently voted to simplify the form of atomic labelling. Atoms of the same chemical species within an asymmetric unit should be distinguished in future by an appended arabic numeral, with parentheses around the numeral required only in the event of ambiguity, such as C11 *versus* Cl(1) or C(11).

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## Commission on Journals
## Author Grievance Procedure

The Commission on Journals has recently instituted a formal appeals procedure in which an author who believes his paper has been unjustifiably rejected by the Co-editor of an IUCr journal may appeal initially to the Editor of that journal for a new review and, finally, to the Editor of the other journal if the author is still aggrieved by the decision.

# Book Reviews

*Works intended for notice in this column should be sent direct to the Book-Review Editor (J. H. Robertson, School of Chemistry, University of Leeds, Leeds LS2 9JT, England). As far as practicable books will be reviewed in a country different from that of publication.*

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**An atlas of hyperstereograms of the four-dimensional crystal classes.** By E. J. W. WHITTAKER. Pp. xiii + 200. Oxford: Clarendon Press, 1985. Price £32.50.

The goal of this book is to provide a visual presentation of four-dimensional crystallographic symmetries by applying the hyperstereographic projection, a method developed by the author. The author takes the matrix groups from *Crystallographic groups of four-dimensional space* by Brown, Bülow, Neubüser, Wondratschek and Zassenhaus [(1978). Wiley, New York] and transfers them into hyperstereograms which are displayed in stereoscopic pairs. The hyperstereograms generated with a computer can be 'read' in a similar way as the usual stereograms of three-dimensional crystal classes.

After a short introduction, crystallographic point symmetries in one-, two- and three-dimensional space are considered and described by matrices. With this background the reader is led to the types of crystallographic symmetry operations of four-dimensional space. Most of them have an equivalent in lower-dimensional spaces but some have not. The next chapter introduces the stereographic and, based on it, the hyperstereographic projection. The crystallographic symmetry operations and their representation by symmetry elements are discussed carefully. The text part closes with a short chapter on a Hermann–Mauguin-type nomenclature for the four-dimensional crystal classes.

The atlas (120 pages) starts with a short explanation regarding the construction of the diagrams, the information given, and the nomenclature. The crystal classes are arranged according to their crystal families and crystal systems, for which the pertinent information is given first. Each of the 227 crystal classes is depicted by its stereopair of hyperstereographic diagrams. Symmetry elements and a set of symmetrically equivalent directions are displayed in the same pair of diagrams. Due to the high order of the crystal classes (up to 1152), not all symmetry elements can be shown for the high-order crystal classes. In such cases a choice has to be made so that the symmetry is best displayed, and the information is distributed to several diagrams.

In general, the exposition is clear and concise. There are very few errors or misprints. The quality of the diagrams is essential to the usefulness of an atlas. Here, the hyperstereograms are reproduced excellently, and it is a pleasure to look at them and to enjoy their spatial appearance. Their complexity varies with the crystal class, but many of them give a good impression of the symmetry.

When reading the book, I found some information missing that would have been useful if included. For example, the geometric properties of the essentially new symmetry operations could have been described more explicitly in the text part, because they are unfamiliar even to the experienced crystallographer. Similarly, for the hyperstereographic projections of these symmetry operations more references to the matrix description would have been helpful, at least for the reviewer. The orders of the crystal classes and Hurley patterns, see Brown *et al.*, would have been useful in the atlas.

The atlas may well serve as a means to brighten up the analytical description of four-dimensional crystallographic symmetry by a supplementary illustrative representation.

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