

International Union of Crystallography

Journal of Applied Crystallography

Notes for Authors

1. Scientific scope

The *Journal of Applied Crystallography* is concerned with the application of crystallography and crystallographic techniques, other than crystal structure determinations, and with the apparatus, techniques and other factors involved. A more complete definition of scientific scope is given in an *Editorial* [*J. Appl. Cryst.* (1994), 27, 1].

2. Categories of contributions

2.1. Research Papers

Full-length *Research Papers* should not normally exceed the equivalent of about 15 000 words (1000 words are equivalent to about four pages of double-spaced manuscript). All papers are sent to referees (ordinarily two) before they are accepted for publication.

2.2. Fast Communications

Fast Communications should not normally exceed the equivalent of about 2000 words (or eight pages of double-spaced typescript). Figures should be clearly lettered. If the paper is available on diskette it would be helpful if this could be sent with the manuscript, together with details of the word-processing package used (see §3.4); complicated tables should be submitted as camera-ready copy. *Fast Communications* will be refereed promptly and prepared using desktop publishing methods. In the letter accompanying the submission, authors should state why rapid publication is essential. Papers submitted for the *Fast Communications* section but judged by the editor not to merit rapid publication will be considered for inclusion with regular papers.

2.3. Lead Articles

Lead Articles are authoritative, comprehensive and forward-looking reviews of major areas of research interest. They are always **commissioned by the Editor**, on the advice of the Editorial Board. Suggestions for suitable topics and of potential author(s) are welcomed by the Editor for discussion with the Board.

The Editor will discuss the treatment of the topic, the length of the *Article* and the delivery date of the manuscript with invited author(s); completed manuscripts will be refereed in the normal manner. *Lead Articles* will be highlighted on the cover of the relevant issue of the *Journal of Applied Crystallography*, be clearly identified within the journal and will carry brief biographical details of their author(s).

2.4. Topical Reviews

A *Topical Review* is a short highly focused survey covering a relatively narrow area of current research interest. It should be written so as to benefit both subject experts and also a more general audience of interested research scientists. A *Topical Review* should not aim to be comprehensive, but a brief introduction should provide historical perspective and a brief conclusion should indicate likely future directions. It is hoped that a less formal style of scientific writing can prevail in these articles.

Topical Reviews will be limited to about ten journal pages (10 000 words or 40 double-spaced manuscript pages) except

in special agreed circumstances. They will be **commissioned by the Editor** either personally, or **following a formal proposal by prospective author(s)**. A letter of intent should be sent (faxed or e-mailed), giving the proposed topic, its importance and an indication of the material to be covered. This letter may be sent to one or more members of the Editorial Board for comment before the full article is commissioned. Once commissioned, author(s) will have priority in their topic within an agreed submission deadline. *Topical Reviews* will be refereed in the normal way, be highlighted within the journal issue, and carry brief biographical details of their author(s). It is hoped that direct contributions by prospective author(s) will become the norm for *Topical Reviews*.

2.5. Short Communications

Short Communications are intended for the presentation of topics of limited scope or for preliminary announcements of novel research findings. They are not intended for interim reports of work in progress, and must report results that are of scientific value in their own right.

Short Communications differ from ordinary articles not only in being shorter (they should not normally exceed 1500 words), but also in being printed in smaller type. They are sent to referees in the normal way.

2.6. Computer Programs

A brief description of the purpose, strategy, computer language, machine requirements, input requirements and the type of results obtained should be included. It is also ordinarily required that the adequacy of the documentation shall have been proven by the successful use of the program by someone outside the author's institution. *Computer Programs* are sent to referees in the normal way.

2.7. Laboratory Notes

These are very brief descriptions of special devices, equipment modifications, techniques for accomplishing certain tasks *etc.* A simple schematic drawing may often be preferable to an actual photograph of the apparatus. These articles will not be refereed.

The International Union of Crystallography can assume no responsibility for the accuracy of the claims made.

2.8. CIF Applications

These papers deal with Crystallographic Information Files (CIFs), especially in connection with computer programs. They are refereed in the normal way.

2.9. Teaching and Education in Crystallography

Papers falling into this category may be in either *Short Communication* or *Research Paper* format. They will cover all aspects of an educational nature related to the general field of crystallography. All such papers will be refereed in the normal way.

2.10. Computer Program Abstracts

This section provides a rapid means of communicating up-to-date information concerning both new programs or systems and significant updates to existing ones. Following normal submission, a *Computer Program Abstract* will be reviewed by one or

two members of the IUCr Commission on Crystallographic Computing. Either the names and addresses of those people outside the author's laboratory who have used and tested the program(s) or a source-code listing and test execution should be provided. These will be sent to the referees as supporting material but will not be published or deposited in any form. A *Computer Program Abstract* should not exceed 500 words in length and should use the standard format given in *J. Appl. Cryst.* (1985), **18**, 189–190.

2.11. *Letters to the Editor*

These may deal with non-technical aspects of crystallography, its role, its propagation, the proper functions of its Societies *etc.* or may make a technical observation that would usefully be brought to wider attention. *Letters* should be sent to the **Editor** only. They will not be refereed.

2.12. *New Commercial Products*

Announcements of new commercial products are published free of charge. The descriptions, up to 300 words or the equivalent if a figure is included, should give the manufacturer's full address. All correspondence should be sent to the Editor.

The International Union of Crystallography can assume no responsibility for the accuracy of the claims made.

2.13. *Meeting Reports*

These are normally invited.

2.14. *Crystallographers*

This category is intended to be a collection of short paragraphs dealing with the activities of crystallographers, such as their changes of position, promotions, assumption of significant new duties, honours, obituaries *etc.* Contributions should be sent to the Executive Secretary of the Union.

2.15. *Forthcoming Meetings and Short Courses*

This section contains details of meetings of scientific societies, congresses, summer schools *etc.* of interest to crystallographers. The *Calendar of Events* summarizes all previously published events. Contributions should be sent to the News and Meetings Editor.

3. Submission and handling of manuscripts

3.1. *Submission*

Manuscripts should be prepared on one side of the paper in **double-spaced** format. All contributions should be submitted in **triplicate** and authors are reminded to keep an exact copy of the submission for later editorial adjustments and for checking proofs. Machine-readable submissions are encouraged (see §3.4).

Every issue of the journal contains the names and addresses of the Editor, the Co-editors and of the Managing Editor. Unless stated otherwise in §2, manuscripts may be submitted to the Editor or any of the Co-editors.

3.2. *Languages of publication*

The languages of publication are English, French, German and Russian. All contributions must be accompanied by an English language *Abstract* and synopsis.

3.3. *Handling of manuscripts*

The Editor or Co-editor to whom the manuscript is submitted is responsible for choosing referees and for accepting or rejecting the paper. This responsibility includes decisions on the final form of the paper and interpretation of these Notes when necessary.

For accepted papers, it is the responsibility of the Managing Editor to prepare the paper for printing. This may involve correspondence with the authors and/or the responsible editor in order

to resolve ambiguities or to obtain satisfactory figures or tables. The date of acceptance that will appear on the published paper is the date on which the Managing Editor receives the last item required. Proofs will be sent to the author who signed the letter of submission unless the Managing Editor is informed of some other suitable arrangement.

On rare occasions, an editor may consider that a paper is better suited to a section of *Acta Crystallographica* rather than the *Journal of Applied Crystallography*. Alterations to the journal of publication will only be made after full discussion with the communicating author.

3.4. *Machine-readable submissions*

Authors who have used $\text{T}_{\text{E}}\text{X}$, $\text{L}^{\text{A}}\text{T}_{\text{E}}\text{X}$, Wordperfect or Word to prepare their manuscripts are invited to send a machine-readable version with their submission. The following formats may be used: 3.5 and 5.25" IBM-compatible, 3.5" Apple Macintosh and 3.5" Sun OS diskettes. *Fast Communications*, *Letters to the Editor* and *Computer Program Abstracts* should be accompanied by a diskette whenever possible. It would be appreciated if all machine-readable submissions were accompanied by an ASCII dump of the file(s) to aid possible troubleshooting, and details of the word-processing package used.

3.5. *Author's warranty*

The submission of a paper is taken as an implicit guarantee that the work is original, that it is the author(s) own work, that all authors concur with and are aware of the submission, that proper credit is given to others, that the manuscript has not already been published (in any language), and that it is not being considered and will not be offered elsewhere while under consideration for an IUCr journal. For these reasons, the submission must be made over the signature of at least one author.

3.6. *Copyright*

Except as required otherwise by national laws, an author must sign and submit a copy of the Transfer of Copyright Agreement form (given at the end of these Notes) for each manuscript before it can be accepted.

3.7. *Author grievance procedure*

An author who believes his paper has been unjustifiably rejected by the Co-editor may appeal initially to the Editor for a new review and, finally, to the Editor-in-Chief of *Acta Crystallographica* if the author is still aggrieved by the decision.

4. Layout and typography

Contributions should be prepared on one side of the paper in **double-spaced** format with wide margins, and should conform to the general editorial style of the journal.

4.1. *Type style*

The editorial staff in Chester will indicate to the printer the style of type to be used. It is better that authors should not indicate type style at all rather than do so in a way different from that used by the printers. However, it is helpful if authors indicate vectors and tensors by a wavy underline.

4.2. *Mathematics and letter symbols*

The use of the stop (period) to denote multiplication should be avoided except in scalar products. Generally no sign is required but, when one is, a multiplication sign (\times) should be used.

Greek letters should not be spelled out except in marginal notes of clarification.

Care should be taken not to cause confusion by using the same letter symbol in two different meanings.

Gothic, script, or other unusual lettering should be identified in marginal notes. The printer may be instructed to use another type face if that indicated by the author is not readily available.

5. Abstract and synopsis

All scientific contributions must be preceded by an English language *Abstract* and a one or two sentence synopsis of the main findings of the paper for inclusion in the Table of Contents for the relevant issue. The *Abstract* should state as specifically and as quantitatively as possible the principal results obtained.

The *Abstract* should be suitable for reproduction by abstracting services without change in wording. It should not repeat information given in the title. Ordinarily 200 words suffice for a full-length article and 100 words for shorter contributions. It should make no reference to tables, diagrams, atom numbers or formulae contained in the paper. It should not contain footnotes. Numerical information given in the *Abstract* should not be repeated in the text. It should not include the use of 'we' or 'I'.

Literature references in an *Abstract* are discouraged. If a reference is unavoidable, it should be sufficiently full within the *Abstract* for unambiguous identification, e.g. [Filippini (1990). *Acta Cryst.* **B46**, 643–645].

6. Diagrams and photographs ('figures')

6.1. Design

The choice of tables and figures should be optimized to produce the shortest printed paper consistent with clarity. Duplicate presentation of the same information in both tables and figures is to be avoided, as is redundancy with the text.

Supplementary diagrams may be deposited (see §10.1).

In a charge-density paper only those figures which are strictly necessary to illustrate the techniques or results described will be published: any others will be deposited. The text should be adequate to give the remaining information.

In papers which use powder profile fitting or refinement (Rietveld) methods, figures which present the experimental and calculated diffraction profiles of the material studied should also contain the difference profile. As primary diffraction data cannot be satisfactorily extracted from such figures, the basic digital diffraction data should be deposited (see §10.4).

6.2. Quality

Diagrams must be provided in 'hard-copy' form, that is, as careful drawings in black ink or as high-quality photographic copies (glazed prints, not mounted). An individual hard-copy diagram must be provided for each figure.

6.3. Colour figures

Figures in colour are accepted **at no cost to the author** provided the editor agrees that they improve the understanding of the paper. They should be provided as glossy prints or slides (in the latter case a photocopy showing the required figure layout should also be provided).

6.4. Size

Diagrams should be as small as possible consistent with legibility. If possible, each diagram should be provided on a separate sheet of about A4 International Paper Size (210×297 mm). They will normally be further reduced by the printer, generally so that the greatest width including lettering is less than the width of a column of the journal (approximately 80 mm). Figures at greater than column width are allowed at editorial discretion.

6.5. Stereofigures

Stereofigures are welcomed in *Journal of Applied Crystallography*. Atom labelling when included should be on both left and right views in stereo perspective.

6.6. Lettering and symbols

Fine-scale details and lettering must be large enough to be clearly legible (not less than 1.2 mm in height) after the whole diagram has been reduced to one column (80 mm) width.

Lettering should be kept to a minimum; distances, bond angles and torsion angles should be given as tables and descriptive matter should be placed in the legend.

On diagrams and figures, the author's own lettering ready for photographing is preferred; if necessary, lettering will be added by the printer if a photocopy showing the required lettering is supplied with an unlettered original.

6.7. Numbering and legends

Diagrams and photographs must be numbered as figures in a single series, normally in the order in which they are referred to in the text. A list of the legends ('figure captions') is to be attached to the manuscript.

7. Tables

7.1. Economy in use of tables

Numerical information is generally most economically presented in tables. Text and diagrams should not be redundant with the tables.

Small tables will normally be set in type while large tables may be photographically reproduced or deposited.

Structure factors, anisotropic displacement parameters, least-squares planes and unrefined H-atom coordinates are deposited, **except when the nature of the paper requires that they be immediately available.**

7.2. Design, numbering and size

Tables must be numbered in a single series of arabic numerals, normally in the order in which they are referred to in the text. They should be provided with a caption either at the top or, if the table is to be photographed, on a separate sheet.

Tables should be carefully designed to occupy a minimum of space consistent with clarity. Tables to be photographed should be prepared in single spacing, without excessive space between columns.

8. Nomenclature

8.1. Crystallographic nomenclature

Atoms of the same chemical species within an asymmetric unit should be distinguished by an appended arabic numeral. **Chemical and crystallographic numbering should be in agreement wherever possible.** When it is necessary to distinguish crystallographically equivalent atoms in different asymmetric units the distinction should be made by lower-case roman numeral superscripts (*i.e.* i, ii, iii *etc.*) to the original atom labels.

Space groups should be designated by the Hermann–Mauguin symbols. Standard cell settings, as listed in **Volume A** of *International Tables for Crystallography*, should be used unless objective reasons to the contrary are stated. When a non-standard setting is used, the list of equivalent positions should be given. Hermann–Mauguin symbols should also be used for designating point groups and molecular symmetry. It is helpful if the origin used is stated explicitly where there is a choice.

The choice of axes should normally follow the recommendations of the Commission on Crystallographic Data [Kennard, Speakman & Donnay (1967). *Acta Cryst.* **22**, 445–449].

A symbol such as 123 or *hkl* without brackets is understood to be a reflection, (123) or (*hkl*) a plane or set of planes, [123] or [*uvw*] a direction, {*hkl*} a form and $\langle uvw \rangle$ all crystallographically equivalent directions of the type [*uvw*]. Other bracket notations should be explicitly defined.

For the nomenclature of crystal families, Bravais-lattice types and arithmetic classes see de Wolff *et al.* [*Acta Cryst.* (1985), **A41**, 278–280].

For the nomenclature of polytypes see Guinier *et al.* [*Acta Cryst.* (1984), **A40**, 399–404].

For the nomenclature of inorganic structure types see Lima-de-Faria *et al.* [*Acta Cryst.* (1990), **A46**, 1–11].

For symbols for symmetry elements and symmetry operations see de Wolff *et al.* [*Acta Cryst.* (1992), **A48**, 727–732].

8.2. Nomenclature of chemical compounds etc.

Names of chemical compounds and minerals are not always unambiguous. Authors should therefore quote the chemical formulae, including chemical structural diagrams for organic and metal-organic compounds, of the substances dealt with in their papers.

Chemical formulae and nomenclature should conform to the rules of nomenclature established by the International Union of Pure and Applied Chemistry (IUPAC), the International Union of Biochemistry and Molecular Biology (IUBMB), the International Mineralogical Association and other appropriate bodies. As far as possible, the crystallographic nomenclature should correspond to the systematic name.

Any accepted trivial or nonsystematic name may be retained, but the corresponding systematic (IUPAC) name should also be given.

If help on assigning systematic names is sought from advisory sources, authors are requested to indicate the source consulted.

8.3. Units

The SI system of units is to be used except that the ångström (symbol Å, defined as 10^{-10} m) is preferred to the nanometre (nm) or picometre (pm). Recommended prefixes of decimal multiples should be used rather than ' $\times 10^n$ '.

9. References

References to published work must be indicated by giving the authors' names followed immediately by the year of publication, *e.g.* Neder, Frey & Schulz (1990) or (Neder, Frey & Schulz, 1990). Where there are six or more authors, the reference in the text should be indicated in the form Smith *et al.* (1989) or (Smith *et al.*, 1989) *etc.* (all authors should be included in the full list).

At the end of the paper, a list giving full details of all references should be appended separately. In the reference list, entries for journals [abbreviated in the style of *Chemical Abstracts* (the abbreviations *Acta Cryst.* and *J. Appl. Cryst.* are exceptions)], books, multi-author books, computer programs, personal communications and undated documents should be arranged alphabetically and conform with the following style:

Burns, R. C. & Davies, G. J. (1992). *The Properties of Natural and Synthetic Diamond*, edited by J. E. Field, pp. 395–422. London: Academic Press.

Centore, R. & Iannelli, P. International Workshop on Liquid Crystalline Polymers, 1–4 June 1993, Capri, Italy.

Glatter, O. & Kratky, O. (1982). *Editors. Small-Angle X-ray Scattering*. New York: Academic Press.

Hummel, W., Hauser, J. & Bürgi, H.-B. (1995). In preparation.

Jones, P. T. (1987). Personal communication.

Mildner, D. F. R. & Chen, H. (1994a). *J. Appl. Cryst.* **27**, 316–325.

Mildner, D. F. R. & Chen, H. (1994b). *J. Appl. Cryst.* **27**, 943–949.

Nye, J. F. (1985). *Physical Properties of Crystals*, pp. 140–148. Oxford Univ. Press.

Perkins, P. (undated). PhD thesis, Univ. of London, England.

Sheldrick, G. M. (1976). SHELX76. Program for Crystal Structure Determination. Univ. of Cambridge, England.

Tilton, R. F. (1988). *J. Appl. Cryst.* **21**, 4–9.

Tilton, R. F. & Kuntz, I. D. (1982). *Biochemistry*, **21**, 6850–6857.

Note that **inclusive** page numbers must be given.

When more than ten references are taken from a data base (usually for a structural paper), a condensed reference notation of the Coden type should be used.

10. Supplementary publication procedure (deposition)

10.1. Purpose and scope

Parts of some papers are of interest to only a small number of readers, and the cost of printing these parts is not warranted. Arrangements have therefore been made for such material to be deposited with the IUCr, the Protein Data Bank at Brookhaven and the ICDD as appropriate.

The information to be deposited is **at the discretion of the editor** and may include:

Details of the experimental procedure.

Details of the stages of structure refinement.

Details of mathematical derivations given only in outline in the main text and in mathematical Appendices.

Lengthy discussion of points that are not of general interest or that do not lead to definite conclusions but that do have significant value.

Additional diagrams.

All material to be deposited should be clearly so marked; it will be subject to the usual refereeing procedure.

10.2. Preparation of material for deposit

Material for deposit should:

be of a quality such that photocopies of it are completely legible;

have dimensions for text and tables not exceeding A4 International Paper Size (210×297 mm) (larger dimensions may be acceptable in exceptional circumstances);

not be photographically reduced so that character heights are less than 1.2 mm;

contain the title page of the paper to which it relates (including the *Abstract*);

have pages clearly numbered to ensure the correct sequence;

be sent **in triplicate** with the paper when it is submitted.

10.3. Macromolecular structures

For all structural studies of macromolecules, coordinates and structure factors must be deposited with the Protein Data Bank at Brookhaven National Laboratory, if a total molecular structure has been reported.

An author may request that the structure factors be given a privileged status for a period of no longer than four years and for atomic coordinates no longer than one year from the date of publication. Earlier release would require the specific consent of the author.

10.4. *Powder diffraction data*

For papers that present the results of powder diffraction profile fitting or refinement (Rietveld) methods, the primary diffraction data, *i.e.* the numerical intensity of each measured point on the profile as a function of scattering angle, will be deposited.

Co-editors will send powder diffraction data (reported either in the paper or in the deposited material) to the International Centre for Diffraction Data (ICDD), 1601 Park Lane, Swarthmore, PA 19081-2389, USA. These data will then be checked and assigned an ICDD reference number which will, where possible, be published in the paper.

11. Reprints

Twenty-five reprints of each published article will be provided to a nominated author free of charge.

International Union of Crystallography
Transfer of Copyright Agreement

Title of Article (*Please type or use capital letters*)

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Authors (*Please type or use capital letters*)

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The signed statement must be received before the article can be accepted for publication. Requests for further information should be sent to the Executive Secretary of the Union.

* In this case please give further details overleaf.

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M. E. Ref.	Co-editor Ref.	Issue	Journal
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