

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.* (2000), **33**, 1].

2. Categories of contributions

Contributions should conform to the general editorial style of the journal.

2.1. Research Papers

Full-length *Research Papers* should not normally exceed 15 journal pages (about 15 000 words).

2.2. 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 should not normally exceed two journal pages (about 1500 words). A maximum of two figures and two tables of appropriate size are permitted.

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). *Lead Articles* will be refereed in the normal manner; they will be made open access on publication.

2.4. Feature Articles

A *Feature Article* is a focused survey covering recent advances in an area of current research. It should not aim to be comprehensive, but a brief introduction should provide historical perspective and a brief conclusion should indicate likely future directions. Inclusion of relevant new results is appropriate.

Feature Articles will generally be about ten journal pages (10 000 words). Shorter articles on rapidly evolving areas are also actively encouraged. They will be **commissioned by the Editor**, either personally **or following a formal proposal by prospective author(s)**. *Feature Articles* will be refereed in the normal way; they will be made open access on publication.

2.5. Teaching and Education in Crystallography

Papers in this category cover all aspects of an educational nature related to the general field of crystallography. All contributions should be submitted to the Teaching and Education Editor, whose address appears on the inside front cover of each issue.

2.6. Cryocrystallography Papers

Cryocrystallography Papers are papers of a practical kind, dealing with cryocrystallography techniques and developments. All contributions should be submitted to the Cryocrystallography Editor, whose address appears on the inside front cover of each issue.

2.7. 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 proved by the successful use of the program by two different teams outside the author's institution. Authors would usually be expected to be those who developed the program. Computer programs will generally be about five journal pages (5000 words). Shorter articles on both new programs or systems and significant updates to existing ones will also be considered.

2.8. CIF Applications

These papers deal with Crystallographic Information Files (CIFs), especially in connection with computer programs.

2.9. 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. The Co-editor may consult referees, as necessary.

2.10. Letters to the Editor

These may deal with non-technical aspects of crystallography, its role, its propagation, the proper function of its Societies *etc.*, or may make a technical observation or scientific comment that would usefully be brought to a wider audience. Letters should be submitted to the **Editor** only. They will not be refereed but will undergo editorial evaluation.

2.11. 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.

2.12. Meeting Reports

These are normally invited.

2.13. 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.

3. Submission and handling of manuscripts

3.1. Submission

Full details of the submission procedure can be found at <http://journals.iucr.org/j/services/submitbdy.html>. If the article reports a crystal structure, a CIF should be supplied (<http://journals.iucr.org/j/services/cifinfo.html>). Full instructions for submitting a paper and details of the files required are given at <http://journals.iucr.org/j/services/submitinstructions.html>. Authors are encouraged to use the templates available from <http://journals.iucr.org/j/services/help-submit.html>. Articles will be checked for plagiarism using the CrossCheck service.

In the case of Addenda or Errata to published papers, the article should be submitted to the Co-editor of the original paper.

3.2. Languages of publication

Journal of Applied Crystallography will publish papers in English, French, German and Russian.

3.3. Quality of writing

Papers should be clearly written and grammatically correct. If the Co-editor concludes that language problems would place an undue burden on the referees, the manuscript may be returned to the authors without review. Details of language-editing services can be found at <http://journals.iucr.org/services/languageservices.html>.

3.4. Handling of manuscripts

All contributions will be seen by referees (normally two) before they can be accepted for publication. The editor to whom the manuscript is assigned 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.

If changes to a manuscript requested by the Editor, Co-editor or the editorial staff are not received within **two months** of transmittal to the author, the submission will be considered as withdrawn. Should the manuscript require further revision, this would normally be expected to be completed within one month of the revision having been requested. If a manuscript is not acceptable after two revisions it will not be considered further. Any subsequent communication of the material will be treated as a new submission in the editorial process. A paper that has been rejected must not be resubmitted to any IUCr journal unless the reasons given for the rejection have been fully addressed in the revised version.

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. Correspondence will be sent to the author who submitted the paper 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* or to the *Journal of Synchrotron Radiation* rather than the *Journal of Applied Crystallography*. Any change to the journal of publication will only be made after full discussion with the communicating author.

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 all workers involved in the study are listed as authors or given proper credit in the acknowledgments, that the manuscript has not already been published (in any language or medium), and that it is not being considered and will not be offered elsewhere while under consideration for an IUCr journal. The inclusion of material in an informal publication, *e.g.* a preprint server or a newsletter, does not preclude publication in an IUCr journal.

The co-authors of a paper should be all those persons who have made significant scientific contributions to the work reported, including the ideas and their execution, and who share responsibility and accountability for the results. Other contributions should be indicated in an 'Acknowledgments' section.

Important considerations related to publication have been given in the ethical guidelines published in *Acc. Chem. Res.* (2002), **35**, 74–76 and Graf *et al.* [*Int. J. Clin. Pract.* (2007), **61**(Suppl. 152), 1–26].

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 for each manuscript before it can be accepted. Authors will be asked to transfer copyright during the electronic submission procedure. Details of author rights can be found at <http://journals.iucr.org/services/authorrights.html>.

3.7. Author grievance procedure

An author who believes that a paper has been unjustifiably treated by the Co-editor may appeal initially to the Editor for a new review and, finally, to the Editor-in-chief of IUCr Journals if the author is still aggrieved by the decision. The initial appeal must be made within 3 months of rejection of the paper. The decision of the Editor-in-chief is final. Any resubmission to another Co-editor will be forwarded to the Editor.

3.8. Contact e-mail address

The contact author must provide an e-mail address for editorial communications and despatch of electronic proofs.

For papers presenting computer programs, authors should, where possible, supply an e-mail, World Wide Web or ftp address from where the program may be obtained.

3.9. File format

The source files required for a paper are: a single file in WORD, RTF or L^AT_EX format of the text, tables and figure captions of the article; a high-resolution graphics file (minimum 600 d.p.i.) in TIFF, PostScript or encapsulated PostScript format for each figure and scheme; and files of any supplementary material. These should be uploaded as described in the **online submission instructions**.

3.10. File transfer

After initial submission, any revised or new files should be uploaded *via* the web interface only after a specific request from a Co-editor; the files should be uploaded at the web address provided by the Co-editor.

4. Abstract and synopsis

All contributions must be accompanied 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. 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 *Abstracts* of *Research Papers*, *Lead Articles* and *Feature Articles*, and 100 words for shorter contributions. It should make no reference to tables, diagrams, atom numbers or formulae contained in the paper, and should not contain footnotes. Acronyms should not be used, except if needed within the *Abstract*. 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. [Lang (1995). *J. Appl. Cryst.* **28**, 355–357].

5. Diagrams and photographs ('figures')

A set of guidelines for preparing figures is available from <http://journals.iucr.org/j/services/help/artwork/guide.html>. Figures should be prepared using one of the file formats listed in §3.9.

The choice of figures should be optimized to produce the shortest printed paper consistent with clarity. [Normally, single-column width (8.8 cm) should be envisaged, see §5.2.] Duplicate presentation of the same information in both tables and figures is to be avoided, as is redundancy with the text. Supplementary figures may be deposited (see §11).

In papers which use powder-profile fitting or refinement (Rietveld) methods, figures that 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 §11.4).

5.1. Quality

Electronic files in the formats listed in §3.9 are essential for high-quality reproduction. The resolution of bitmap graphics should be a minimum of 600 d.p.i.

5.2. Size

Diagrams should be as small as possible consistent with legibility. They will normally be sized so that the greatest width including lettering is less than the width of a column in the journal (8.8 cm).

5.3. Lettering and symbols

Fine-scale details and lettering must be large enough to be clearly legible (ideally 1.5–3 mm in height) after the whole diagram has been reduced to one column width.

Lettering should be kept to a minimum; grids and shadings should be avoided where they are not required to improve clarity. Descriptive matter should be placed in the caption.

5.4. Numbering and captions

Diagrams should be numbered in a single series in the order in which they are referred to in the text. A list of the figure captions should be included in the manuscript.

5.5. Stereofigures

Atom labelling when included should be on both left and right views in stereo perspective. Both views should be incorporated into a single figure.

5.6. Colour figures

Colour figures are accepted at no cost to the author provided that the editor agrees that they improve the understanding of the paper. Figures printed in greyscale may appear in colour in **Crystallography Journals Online**.

Authors preparing colour figures should consider how the figure would look if printed in greyscale and to readers who are colour-blind. It is very important that poor contrast (e.g. pale colours with a white background) be avoided.

5.7. Enhanced figures

An online tool for authors to prepare standard and corresponding three-dimensional interactive structural diagrams is available from <http://submission.iucr.org/jtkf>.

6. Tables

Authors submitting in Word should use the Word table editor to prepare tables.

6.1. Use of tables

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

Structure factors, anisotropic displacement parameters, least-squares planes and unrefined H-atom coordinates are usually deposited as electronic files, see §11.

6.2. Design, numbering and size

Tables should be numbered in a single series of arabic numerals in the order in which they are referred to in the text. They should be provided with a caption.

Tables should be carefully designed to occupy a minimum of space consistent with clarity.

7. Mathematics and letter symbols

Authors submitting in Word should use the Word equation editor to prepare displayed mathematical equations.

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.

Make sure only scalar variables and non-standard functions appear in italic font.

Vectors should be in bold type and tensors should be in bold-italic type.

Greek letters should not be spelled out.

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 avoided. Another typeface may be substituted if that used by the author is not readily available.

All displayed equations, including those in published Appendices, should be numbered in a single series.

8. Multimedia

Multimedia content (e.g. time-lapse sequences, three-dimensional structures) is welcomed. For details of how to prepare enhanced three-dimensional figures, see §5.7.

9. Nomenclature

9.1. Crystallographic nomenclature

Authors should follow the general recommendations produced by the IUCr Commission on Crystallographic Nomenclature (see reports at <http://www.iucr.org/iucr/commissions/cnom.html>).

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 *et al.* (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 (*uvw*) all crystallographically equivalent directions of the type [*uvw*]. Other bracket notations should be explicitly defined.

9.2. 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 (IMA) and other appropriate bodies. As far as possible, the crystallographic nomenclature should correspond to the systematic name.

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

9.3. Units

The International System of Units (SI) is used except that the ångström (symbol Å, defined as 10^{-10} m) is generally preferred to the

nanometre (nm) or picometre (pm) as the appropriate unit of length. Recommended prefixes of decimal multiples should be used rather than ‘ $\times 10^n$ ’.

10. References

References to published work must be indicated by giving the authors' names followed immediately by the year of publication, e.g. Neder & Schulz (1998) or (Neder & Schulz, 1998). Where there are three or more authors, the reference in the text should be indicated in the form Smith *et al.* (1998) or (Smith *et al.*, 1998) etc. (all authors should be included in the full list).

In the reference list, entries for journals [abbreviated in the style of *Chemical Abstracts* (the abbreviations *Acta Cryst.*, *J. Appl. Cryst.* and *J. Synchrotron Rad.* are exceptions)], books, multi-author books, computer programs and personal communications should be arranged alphabetically and conform with the following style:

- Altomare, A., Burla, M. C., Cascarano, G., Giacovazzo, C., Guagliardi, A., Moliterni, A. G. G. & Polidori, G. (1996). *J. Appl. Cryst.* **29**, 341–345. Collaborative Computational Project, Number 4 (1994). *Acta Cryst.* **D50**, 760–763.
- CRC Handbook of Chemistry and Physics* (1983). 64th ed., edited by R. C. Weast, p. D-46. Boca Raton, Florida: CRC Press.
- Glatter, O. & Kratky, O. (1982). Editors. *Small-Angle X-ray Scattering*. New York: Academic Press.
- Hofmann, A. (2009). *J. Appl. Cryst.* **42**, doi:10.1107/S0021889808037229. International Union of Crystallography (2009). (*IUCr*) *Structure Reports Online*, <http://journals.iucr.org/e/journalhomepage.html>.
- 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.
- Rietveld, H. M. (1969) *J. Appl. Cryst.* **2**, 65–71.
- Sakthivel, A. & Young, R. A. (1992). *DBWS9006. Program for Rietveld Analysis of X-ray and Neutron Powder Diffraction Patterns*. School of Physics, Georgia Institute of Technology, Georgia, USA.
- Sheldrick, G. M. (2008). *Acta Cryst.* **A64**, 112–122.
- Shindyalov, I. N., Cooper, J. Chang, W. & Bourne, P. E. (1995). *Proceedings of the 28th Hawaii Annual Conference on System Sciences*, pp. 207–217. Maui: IEEE Press.
- Tizlouine, A. (1994). PhD thesis, University of Metz, France.
- Williams, C. J. (1995). Personal communication.
- Yamada, M. & Hida, M. (2009). *J. Appl. Cryst.* **42**. In the press.

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

Identification of individual structures in the paper by use of database reference (identification) codes should be accompanied by a full citation of the original literature in the reference list.

11. Supplementary publication procedure

11.1. 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 made available from the IUCr electronic archive *via Crystallography Journals Online* or to be deposited with the Protein Data Bank, the Nucleic Acid Database and the ICDD as appropriate.

11.2. IUCr electronic archive

All material for deposition in the IUCr electronic archive should be supplied electronically.

Non-structural information, which 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; and
additional diagrams;

should usually be supplied as a single file in one of the formats given in §3.9.

Structural information (for small-molecule structures) should be supplied in CIF format; structure factors should be supplied as .fcf files.

11.3. Macromolecular structures

Authors should follow the deposition recommendations of the IUCr Commission on Biological Macromolecules [*Acta Cryst.* (2000), **D56**, 2]. For all structural studies of macromolecules, coordinates and the related experimental data (structure-factor amplitudes/intensities and/or NMR restraints) must be deposited at a member site of the Worldwide Protein Data Bank (<http://www wwPDB.org>) if a total molecular structure has been reported. Authors are encouraged to deposit their data with the wwPDB in advance of submission to the journal and to provide an mmCIF and a wwPDB validation report on submission. Authors must supply the wwPDB reference codes before the paper can be published.

Authors are encouraged to make arrangements for the diffraction data images for their structure to be archived.

11.4. Powder diffraction data

Authors of powder diffraction papers should consult the notes provided at <http://journals.iucr.org/services/cif/powder.html>. 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, should be deposited.

12. Crystallography Journals Online

All IUCr journals are available on the web *via* **Crystallography Journals Online**; <http://journals.iucr.org/>. Full details of author services can be found at <http://journals.iucr.org/j/services/authorservices.html>.

12.1. Electronic status information

Authors may obtain information about the current status of their papers at <http://journals.iucr.org/services/status.html>.

12.2. Proofs

Proofs will be provided electronically in portable document format (pdf). The correspondence author will be notified by e-mail when the proofs are ready for downloading.

12.3. Open access

At the proof stage, authors will be given the opportunity to make their papers 'open access' on **Crystallography Journal Online**. Authors of open-access articles will not be asked to transfer copyright to the IUCr, but will instead be asked to agree to an open-access licence. This licence is identical to the Creative Commons Attribution Licence.

12.4. Reprints

After publication, the correspondence author will be able to download the electronic reprint of the published article, free of charge. Authors will also be able to order printed reprints at the proof stage.