DESCRIPTION

Scripta Materialia is a LETTERS journal of Acta Materialia, providing a forum for the rapid publication of short communications on the relationship between the structure and the properties of inorganic materials. The emphasis is on originality rather than incremental research. Short reports on the development of materials with novel or substantially improved properties are also welcomed. Emphasis is on either the functional or mechanical behavior of metals, ceramics and semiconductors at all length scales.

The following aspects are of particular interest:

(i) discovery or development of new materials with novel functional or mechanical properties of potential engineering interests;

(ii) characterization of the structure and chemistry of materials for understanding the properties;

(iii) cutting-edge experiments and theory for understanding structure-property relationships;

(iv) novelty in simulation and modeling in the context of understanding properties, preferably combined with experimental verification;

(v) elucidation of the mechanisms involved in the synthesis and processing of materials as a route to the elucidation of properties;

In addition, Scripta Materialia publishes comments on papers published in Acta Materialia and Scripta Materialia. The journal also publishes Viewpoint Sets, which are a collection of invited short articles focused on topics of current interest within the scope of the journal and coordinated by invited guest editors.

AUDIENCE

Materials Scientists and Engineers.

IMPACT FACTOR

2017: 4.163 © Clarivate Analytics Journal Citation Reports 2018
ABSTRACTING AND INDEXING

Energy Research Abstracts
Current Contents
BIOSIS
Cambridge Scientific Abstracts
Engineering Index
IBZ
Energy Data Base
Metals Abstracts
World Aluminum Abstracts
MSCI
Scopus

EDITORIAL BOARD

Coordinating Editor
Christopher Schuh, Dept. of Materials Science and Engineering, Massachusetts Institute of Technology, 77 Massachusetts Avenue, Cambridge, MA 02139, USA
Editorial Associate: Becky Houston | Associate Editors: Dr. Baptiste Gault, Dr. Marc Legros

Principal Editor
Kazuhiro Hono, National Institute of Materials Science, 1-2-1 Sengen, 305-0047, Tsukuba, Japan
Associate Editors: Prof. Sudarsanam S. Babu and Dr. Kazunori Takada

Editors
Irene Beyerlein, Materials Departments, Dept. of Mechanical Engineering, University of California at Santa Barbara, Santa Barbara, California, CA 93106-5070, USA
Jeff De Hosson, Dept. of Applied Physics, Zernike Inst. for Advanced Materials, Rijksuniversiteit Groningen, Nijenborgh 18, 9747 AG, Groningen, Netherlands
Laser surface processes; PVD coatings; Microscopy; Nanocomposites; Friction-wear
Tadashi Furuhara, Inst. for Materials Research, Tohoku University, 2-1-1 Katahira, 980-8577, Aoba-ku, Sendai, Japan
Christopher Hutchinson, Dept. of Materials Science and Engineering, Clayton Campus, Monash University, Wellington Road, Clayton, VIC 3800, Victoria, Australia
Nack Joon Kim, Graduate Inst. of Ferrous Technology, Pohang University of Science and Technology, San 31 Hyoja-Dong, Nam-Gu, Pohang, 790-784, Gyeongbuk, South Korea
Editorial Assistant: Yon Park, Deputy Editor: Professor Dong-Woo Suh
Lei Lu, Inst. of Metal Research, Chinese Academy of Sciences, Shenyang National Laboratory for Materials Sciences, 72 Wenhu Road, 110016, Shenyang, China
Editorial Assistant: Shuai Jin
Ce-Wen Nan, School of Materials Science & Engineering, Tsinghua University, 30 Shuangqing Rd, Haidian Qu, 100084, Beijing, China
Nitin Padture, School of Engineering, Brown University, Providence, RI 02912, USA
Editorial Assistant: Sherilyn A. Padture
Upadrasta Ramamurty, School of Mechanical and Aerospace Engineering, Nanyang Technological University, 50 Nanyang Avenue, North Spine, #N3.2-02-05, Singapore 639798
Editorial Assistant: Hema Gurumurthy
Subhash Risbud, Dept. of Chemical Engineering and Materials Science, University of California, Davis, 1 Shields Avenue, Davis, California, CA 95616, USA
David Rodney, Institut Lumière Matière, Institut Lumière Matière, Université de Lyon, Lyon Tech-La Doua, Bâtiment Brillouin, 6 rue Ada B, 69622, Villeurbanne, France
Associate Editors: Dr. Emmanuel Clouet, Professor Chad Sinclair

The Board of Governors of Scripta Materialia
John Ågren
Swedish Society for Metallurgy and Materials Representative Governor
Hua Ai
Chinese Society for Biomaterials, Governor
Kristi S. Anseth
Governor
Edward Cole, Jr.
ASM Governor
Arthur Coury  
Board Governor  

Gerhard Dehm  
Cooperating Society Governor  

Alexis Deschamps  
French Metallurgical Society Representative Governor  

George Gray, III  
Chair, Treasurer and Board Governor  

Carolyn Hansson  
Executive Secretary and Cooperating Society Governor  

Tatsuki Ohji  
ASM Governor  

Gregory B. Olson  
ASM Governor  

Judith Ann Schneider  
TMS Board Governor  

Christopher Schuh  
Coordinating Editor and Governor  

M. Singh  
ASM Governor  

Gary Warren  
TMS Governor
INTRODUCTION

Aims and Scope

*Scripta Materialia* is a LETTERS journal of *Acta Materialia*, providing a forum for the rapid publication of short communications on the relationship between the structure and the properties of inorganic materials. The emphasis is on originality rather than incremental research. Short reports on the development of materials with novel or substantially improved properties are also welcomed. Emphasis is on either the functional or mechanical behavior of metals, ceramics and semiconductors at all length scales.

The following aspects are of particular interest:

(i) discovery or development of new materials with novel functional or mechanical properties of potential engineering interests;

(ii) characterization of the structure and chemistry of materials for understanding the properties;

(iii) cutting-edge experiments and theory for understanding structure-property relationships;

(iv) novelty in simulation and modeling in the context of understanding properties, preferably combined with experimental verification;

(v) elucidation of the mechanisms involved in the synthesis and processing of materials as a route to the elucidation of properties;

In addition, *Scripta Materialia* publishes comments on papers published in *Acta Materialia* and *Scripta Materialia*. The journal also publishes Viewpoint Sets, which are a collection of invited short articles focused on topics of current interest within the scope of the journal and coordinated by invited guest editors.

Submission checklist

You can use this list to carry out a final check of your submission before you send it to the journal for review. Please check the relevant section in this Guide for Authors for more details.

Ensure that the following items are present:

One author has been designated as the corresponding author with contact details:
- E-mail address
- Full postal address

All necessary files have been uploaded:

*Manuscript:*
- Include keywords
- All figures (include relevant captions)
- All tables (including titles, description, footnotes)
- Ensure all figure and table citations in the text match the files provided
- Indicate clearly if color should be used for any figures in print

*Graphical Abstracts / Highlights files* (where applicable)

*Supplemental files* (where applicable)

Further considerations
- Manuscript has been 'spell checked' and 'grammar checked'
- All references mentioned in the Reference List are cited in the text, and vice versa
- Permission has been obtained for use of copyrighted material from other sources (including the Internet)
- A competing interests statement is provided, even if the authors have no competing interests to declare
- Journal policies detailed in this guide have been reviewed
- Referee suggestions and contact details provided, based on journal requirements
BEFORE YOU BEGIN

Ethics in publishing
Please see our information pages on Ethics in publishing and Ethical guidelines for journal publication.

Declaration of interest
All authors must disclose any financial and personal relationships with other people or organizations that could inappropriately influence (bias) their work. Examples of potential competing interests include employment, consultancies, stock ownership, honoraria, paid expert testimony, patent applications/registrations, and grants or other funding. Authors must disclose any interests in two places: 1. A summary declaration of interest statement in the title page file (if double-blind) or the manuscript file (if single-blind). If there are no interests to declare then please state this: 'Declarations of interest: none'. This summary statement will be ultimately published if the article is accepted. 2. Detailed disclosures as part of a separate Declaration of Interest form, which forms part of the journal's official records. It is important for potential interests to be declared in both places and that the information matches. More information.

Submission declaration and verification
Submission of an article implies that the work described has not been published previously (except in the form of an abstract, a published lecture or academic thesis, see 'Multiple, redundant or concurrent publication' for more information), that it is not under consideration for publication elsewhere, that its publication is approved by all authors and tacitly or explicitly by the responsible authorities where the work was carried out, and that, if accepted, it will not be published elsewhere in the same form, in English or in any other language, including electronically without the written consent of the copyright-holder. To verify originality, your article may be checked by the originality detection service Crossref Similarity Check.

Preprints
Please note that preprints can be shared anywhere at any time, in line with Elsevier's sharing policy. Sharing your preprints e.g. on a preprint server will not count as prior publication (see 'Multiple, redundant or concurrent publication' for more information).

Use of inclusive language
Inclusive language acknowledges diversity, conveys respect to all people, is sensitive to differences, and promotes equal opportunities. Articles should make no assumptions about the beliefs or commitments of any reader, should contain nothing which might imply that one individual is superior to another on the grounds of race, sex, culture or any other characteristic, and should use inclusive language throughout. Authors should ensure that writing is free from bias, for instance by using 'he or she', 'his/her' instead of 'he' or 'his', and by making use of job titles that are free of stereotyping (e.g. 'chairperson' instead of 'chairman' and 'flight attendant' instead of 'stewardess').

Changes to authorship
Authors are expected to consider carefully the list and order of authors before submitting their manuscript and provide the definitive list of authors at the time of the original submission. Any addition, deletion or rearrangement of author names in the authorship list should be made only before the manuscript has been accepted and only if approved by the journal Editor. To request such a change, the Editor must receive the following from the corresponding author: (a) the reason for the change in author list and (b) written confirmation (e-mail, letter) from all authors that they agree with the addition, removal or rearrangement. In the case of addition or removal of authors, this includes confirmation from the author being added or removed.

Only in exceptional circumstances will the Editor consider the addition, deletion or rearrangement of authors after the manuscript has been accepted. While the Editor considers the request, publication of the manuscript will be suspended. If the manuscript has already been published in an online issue, any requests approved by the Editor will result in a corrigendum.

Article transfer service
This journal is part of our Article Transfer Service. This means that if the Editor feels your article is more suitable in one of our other participating journals, then you may be asked to consider transferring the article to one of those. If you agree, your article will be transferred automatically on your behalf with no need to reformat. Please note that your article will be reviewed again by the new journal. More information.
Copyright
Upon acceptance of an article, authors will be asked to complete a 'Journal Publishing Agreement' (see more information on this). An e-mail will be sent to the corresponding author confirming receipt of the manuscript together with a 'Journal Publishing Agreement' form or a link to the online version of this agreement.

Subscribers may reproduce tables of contents or prepare lists of articles including abstracts for internal circulation within their institutions. Permission of the Publisher is required for resale or distribution outside the institution and for all other derivative works, including compilations and translations. If excerpts from other copyrighted works are included, the author(s) must obtain written permission from the copyright owners and credit the source(s) in the article. Elsevier has preprinted forms for use by authors in these cases.

Author rights
As an author you (or your employer or institution) have certain rights to reuse your work. More information.

Role of the funding source
You are requested to identify who provided financial support for the conduct of the research and/or preparation of the article and to briefly describe the role of the sponsor(s), if any, in study design; in the collection, analysis and interpretation of data; in the writing of the report; and in the decision to submit the article for publication. If the funding source(s) had no such involvement then this should be stated.

Funding body agreements and policies
Elsevier has established a number of agreements with funding bodies which allow authors to comply with their funder’s open access policies. Some funding bodies will reimburse the author for the gold open access publication fee. Details of existing agreements are available online.

Open access
This journal offers authors a choice in publishing their research:

Subscription
• Articles are made available to subscribers as well as developing countries and patient groups through our universal access programs.
• No open access publication fee payable by authors.
• The Author is entitled to post the accepted manuscript in their institution's repository and make this public after an embargo period (known as green Open Access). The published journal article cannot be shared publicly, for example on ResearchGate or Academia.edu, to ensure the sustainability of peer-reviewed research in journal publications. The embargo period for this journal can be found below.

Gold open access
• Articles are freely available to both subscribers and the wider public with permitted reuse.
• A gold open access publication fee is payable by authors or on their behalf, e.g. by their research funder or institution.

Regardless of how you choose to publish your article, the journal will apply the same peer review criteria and acceptance standards.

For gold open access articles, permitted third party (re)use is defined by the following Creative Commons user licenses:

Creative Commons Attribution (CC BY)
Lets others distribute and copy the article, create extracts, abstracts, and other revised versions, adaptations or derivative works of or from an article (such as a translation), include in a collective work (such as an anthology), text or data mine the article, even for commercial purposes, as long as they credit the author(s), do not represent the author as endorsing their adaptation of the article, and do not modify the article in such a way as to damage the author's honor or reputation.

Creative Commons Attribution-NonCommercial-NoDerivs (CC BY-NC-ND)
For non-commercial purposes, lets others distribute and copy the article, and to include in a collective work (such as an anthology), as long as they credit the author(s) and provided they do not alter or modify the article.
The gold open access publication fee for this journal is **USD 3000**, excluding taxes. Learn more about Elsevier's pricing policy: [https://www.elsevier.com/openaccesspricing](https://www.elsevier.com/openaccesspricing).

**Green open access**
Authors can share their research in a variety of different ways and Elsevier has a number of green open access options available. We recommend authors see our [open access page](https://www.elsevier.com/openaccesspage) for further information. Authors can also self-archive their manuscripts immediately and enable public access from their institution's repository after an embargo period. This is the version that has been accepted for publication and which typically includes author-incorporated changes suggested during submission, peer review and in editor-author communications. Embargo period: For subscription articles, an appropriate amount of time is needed for journals to deliver value to subscribing customers before an article becomes freely available to the public. This is the embargo period and it begins from the date the article is formally published online in its final and fully citable form. [Find out more.](https://www.elsevier.com/openaccess)

This journal has an embargo period of 24 months.

**Language (usage and editing services)**
Please write your text in good English (American or British usage is accepted, but not a mixture of these). Authors who feel their English language manuscript may require editing to eliminate possible grammatical or spelling errors and to conform to correct scientific English may wish to use the [English Language Editing service](https://www.elsevier.com/linguistics/editservices) available from Elsevier's WebShop.

**Submission**
Our online submission system guides you stepwise through the process of entering your article details and uploading your files. The system converts your article files to a single PDF file used in the peer-review process. Editable files (e.g., Word, LaTeX) are required to typeset your article for final publication. All correspondence, including notification of the Editor's decision and requests for revision, is sent by e-mail.

**Submit your article**
Please submit your article via [http://ees.elsevier.com/smm/](http://ees.elsevier.com/smm/)

**Referees**
Please submit, with the manuscript, the names, addresses and e-mail addresses of 4 potential referees at least. Note that the editor retains the sole right to decide whether or not the suggested reviewers are used.

**PREPARATION**

**Use of word processing software**
It is important that the file be saved in the native format of the word processor used. The text should be in single-column format. Keep the layout of the text as simple as possible. Most formatting codes will be removed and replaced on processing the article. In particular, do not use the word processor's options to justify text or to hyphenate words. However, do use bold face, italics, subscripts, superscripts etc. When preparing tables, if you are using a table grid, use only one grid for each individual table and not a grid for each row. If no grid is used, use tabs, not spaces, to align columns. The electronic text should be prepared in a way very similar to that of conventional manuscripts (see also the [Guide to Publishing with Elsevier](https://www.elsevier.com/publications/guides-to-researchers)). Note that source files of figures, tables and text graphics will be required whether or not you embed your figures in the text. See also the section on Electronic artwork.

To avoid unnecessary errors you are strongly advised to use the 'spell-check' and 'grammar-check' functions of your word processor.

**Article Structure**

**Introduction**

Short, timely and cutting-edge reports will be considered for publication in *Scripta Materialia*. The content of the paper must be within the aims and scope of the journal.

**Page Limitation**

An article must not exceed 2500 words excluding figures, tables, figure and table captions, abstract, title, author list, references and acknowledgements. When equations are used, each equation should be counted as 20 words.
• **Title.** Concise and informative. Titles are often used in information-retrieval systems. Avoid abbreviations, nomenclatures or trade names of specific commercial materials.

• **Author names and affiliations.** Where the family name may be ambiguous (e.g., a double name), please indicate this clearly. Present the authors' affiliation addresses (where the actual work was done) below the names. Indicate all affiliations with a lower-case superscript letter immediately after the author's name and in front of the appropriate address. Provide the full postal address of each affiliation, including the country. **Author names may not be added after a paper has been accepted.**

• **Corresponding author.** Clearly indicate who will handle correspondence at all stages of refereeing and publication, also post-publication. **Ensure that the e-mail address and the complete postal address of the corresponding author are provided.**

• **Present/permanent address.** If an author has moved since the work described in the article was done, or was visiting at the time, a "Present address" (or "Permanent address") may be indicated as a footnote to that author's name. The address at which the author actually did the work must be retained as the main, affiliation address. Superscript Arabic numerals are used for such footnotes.

**Abstract**
The abstract must not be longer than 100 words. Non-standard abbreviations and specific nomenclature of materials must be avoided. Only atomic symbols and chemical formulae can be used without definition.

**Graphical abstract**
A graphical abstract is mandatory for this journal. It should summarize the contents of the article in a concise, pictorial form designed to capture the attention of a wide readership online. Authors must provide images that clearly represent the work described in the article. Graphical abstracts should be submitted as a separate file in the online submission system. Image size: please provide an image with a minimum of 531 × 1328 pixels (h × w) or proportionally more. The image should be readable at a size of 5 × 13 cm using a regular screen resolution of 96 dpi. Preferred file types: TIFF, EPS, PDF or MS Office files. You can view Example Graphical Abstracts on our information site. Authors can make use of Elsevier's Illustration Services to ensure the best presentation of their images also in accordance with all technical requirements.

**Keywords**
Authors should list a maximum of five keywords which appropriately represent the contents of their manuscripts. The list of keywords should appear on the title page of each paper, following the title, author names and author affiliations, and abstract. Four keywords must be selected from the Keywords List in the most recently published issue of the journal (also available on-line); however, authors may provide one keyword which is not listed in the Keywords List.

Click here for a full list of keywords:
https://www.elsevier.com/__data/promis_misc/SMM%20Keywords.pdf

**Main body**
No headings for subsections are allowed.

Collate acknowledgements with a blank line at the end of the article before the references.

**Formatting of funding sources**
List funding sources in this standard way to facilitate compliance to funder's requirements:

Funding: This work was supported by the National Institutes of Health [grant numbers xxxx, yyyy]; the Bill & Melinda Gates Foundation, Seattle, WA [grant number zzzz]; and the United States Institutes of Peace [grant number aaaa].

It is not necessary to include detailed descriptions on the program or type of grants and awards. When funding is from a block grant or other resources available to a university, college, or other research institution, submit the name of the institute or organization that provided the funding.

If no funding has been provided for the research, please include the following sentence:

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.
Units
Use SI units and abbreviations in manuscripts.

Reference
Text: Indicate references by number(s) in square brackets in line with the text. The actual authors can be referred to, but the reference number(s) must always be given. Example: "..... as demonstrated [3,6]. Barnaby and Jones [8] obtained a different result ...." List: Number the references (numbers in square brackets) in the list in the order in which they appear in the text.

Examples:
Reference to a journal publication:
Reference to a book:
Reference to a chapter in an edited book:

Artwork
General points
Make sure you use uniform lettering and sizing of your original artwork.
Embed the used fonts if the application provides that option.
Use a logical naming convention for your artwork files.
Figures and captions should be submitted on the same page.
Size the illustrations close to the desired dimensions of the published version.
Submit each illustration as a separate file.

A detailed guide on electronic artwork is available on our website: https://www.elsevier.com/artworkinstructions.

You are urged to visit this site; some excerpts from the detailed information are given here.

Formats
If your electronic artwork is created in a Microsoft Office application (Word, PowerPoint, Excel) then please supply 'as is' in the native document format. Regardless of the application used other than Microsoft Office, when your electronic artwork is finalized, please 'Save as' or convert the images to one of the following formats (note the resolution requirements for line drawings, halftones, and line/halftone combinations given below):
EPS (or PDF): Vector drawings, embed all used fonts.
TIFF (or JPEG): Color or grayscale photographs (halftones), keep to a minimum of 300 dpi.
TIFF (or JPEG): Bitmapped (pure black and white pixels) line drawings, keep to a minimum of 1000 dpi.
TIFF (or JPEG): Combinations bitmapped line/half-tone (color or grayscale), keep to a minimum of 500 dpi.

Please do not:
Supply files that are optimized for screen use (e.g., GIF, BMP, PICT, WPG); these typically have a low number of pixels and limited set of colors;
Supply files that are too low in resolution;
Submit graphics that are disproportionately large for the content.

Color artwork
Please make sure that artwork files are in an acceptable format (TIFF (or JPEG), EPS (or PDF), or MS Office files) and with the correct resolution. If, together with your accepted article, you submit usable color figures then Elsevier will ensure, at no additional charge, that these figures will appear in color online (e.g., ScienceDirect and other sites) regardless of whether or not these illustrations are reproduced in color in the printed version. For color reproduction in print, you will receive information regarding the costs from Elsevier after receipt of your accepted article. Please indicate your preference for color: in print or online only. Further information on the preparation of electronic artwork.
Ensure that each illustration has a caption. Figures and captions should be submitted on the same page. A caption should comprise a brief title (not on the figure itself) and a description of the illustration. Keep text in the illustrations themselves to a minimum but explain all symbols and abbreviations used.

The maximum number of figures is 4.

**Tables**

Please submit tables as editable text and not as images. Tables can be placed either next to the relevant text in the article, or on separate page(s) at the end. Number tables consecutively in accordance with their appearance in the text and place any table notes below the table body. Be sparing in the use of tables and ensure that the data presented in them do not duplicate results described elsewhere in the article. Please avoid using vertical rules and shading in table cells.

**References**

**Data references**

This journal encourages you to cite underlying or relevant datasets in your manuscript by citing them in your text and including a data reference in your Reference List. Data references should include the following elements: author name(s), dataset title, data repository, version (where available), year, and global persistent identifier. Add [dataset] immediately before the reference so we can properly identify it as a data reference. The [dataset] identifier will not appear in your published article.

**Reference management software**

Most Elsevier journals have their reference template available in many of the most popular reference management software products. These include all products that support Citation Style Language styles, such as Mendeley. Using citation plug-ins from these products, authors only need to select the appropriate journal template when preparing their article, after which citations and bibliographies will be automatically formatted in the journal's style. If no template is yet available for this journal, please follow the format of the sample references and citations as shown in this Guide. If you use reference management software, please ensure that you remove all field codes before submitting the electronic manuscript. More information on how to remove field codes from different reference management software.

Users of Mendeley Desktop can easily install the reference style for this journal by clicking the following link and choosing Elsevier (numeric, without title):
http://open.mendeley.com/use-citation-style/scripta-materialia

When preparing your manuscript, you will then be able to select this style using the Mendeley plug-ins for Microsoft Word or LibreOffice. For Zotero, please choose Elsevier (numeric, without titles):

**Reference style**

**Text:** Indicate references by number(s) in square brackets in line with the text. The actual authors can be referred to, but the reference number(s) must always be given.

Example: "..... as demonstrated [3,6]. Barnaby and Jones [8] obtained a different result ...."

**List:** Number the references (numbers in square brackets) in the list in the order in which they appear in the text. **Please note that article titles should NOT be included.**

**Examples:**

Reference to a journal publication:
Reference to a book:
Reference to a chapter in an edited book:


**A LaTeX bibliography style file can be downloaded from this page:**
https://www.elsevier.com/authors/author-schemas/latex-instructions

**Journal abbreviations source**

Journal names should be abbreviated according to the [List of Title Word Abbreviations](https://www.elsevier.com/authors/author-schemas/latex-instructions).
**Video**

Elsevier accepts video material and animation sequences to support and enhance your scientific research. Authors who have video or animation files that they wish to submit with their article are strongly encouraged to include links to these within the body of the article. This can be done in the same way as a figure or table by referring to the video or animation content and noting in the body text where it should be placed. All submitted files should be properly labeled so that they directly relate to the video file's content. In order to ensure that your video or animation material is directly usable, please provide the file in one of our recommended file formats with a preferred maximum size of 150 MB per file, 1 GB in total. Video and animation files supplied will be published online in the electronic version of your article in Elsevier Web products, including ScienceDirect. Please supply 'stills' with your files: you can choose any frame from the video or animation or make a separate image. These will be used instead of standard icons and will personalize the link to your video data. For more detailed instructions please visit our video instruction pages. Note: since video and animation cannot be embedded in the print version of the journal, please provide text for both the electronic and the print version for the portions of the article that refer to this content.

**Recommended Upper Limit**

For ease of download, the recommended upper limit for the size of a single video/animation file is 50 MB. When the size of a single file is bigger than this, some users may experience problems when downloading.

**Data visualization**

Include interactive data visualizations in your publication and let your readers interact and engage more closely with your research. Follow the instructions [here](#) to find out about available data visualization options and how to include them with your article.

**Supplementary material**

Supplementary material such as applications, images and sound clips, can be published with your article to enhance it. Submitted supplementary items are published exactly as they are received (Excel or PowerPoint files will appear as such online). Please submit your material together with the article and supply a concise, descriptive caption for each supplementary file. If you wish to make changes to supplementary material during any stage of the process, please make sure to provide an updated file. Do not annotate any corrections on a previous version. Please switch off the 'Track Changes' option in Microsoft Office files as these will appear in the published version.

**Research data**

This journal encourages and enables you to share data that supports your research publication where appropriate, and enables you to interlink the data with your published articles. Research data refers to the results of observations or experimentation that validate research findings. To facilitate reproducibility and data reuse, this journal also encourages you to share your software, code, models, algorithms, protocols, methods and other useful materials related to the project.

Below are a number of ways in which you can associate data with your article or make a statement about the availability of your data when submitting your manuscript. If you are sharing data in one of these ways, you are encouraged to cite the data in your manuscript and reference list. Please refer to the "References" section for more information about data citation. For more information on depositing, sharing and using research data and other relevant research materials, visit the research data page.

**Data linking**

If you have made your research data available in a data repository, you can link your article directly to the dataset. Elsevier collaborates with a number of repositories to link articles on ScienceDirect with relevant repositories, giving readers access to underlying data that gives them a better understanding of the research described.

There are different ways to link your datasets to your article. When available, you can directly link your dataset to your article by providing the relevant information in the submission system. For more information, visit the [database linking page](#).

For supported data repositories a repository banner will automatically appear next to your published article on ScienceDirect.
In addition, you can link to relevant data or entities through identifiers within the text of your manuscript, using the following format: Database: xxxx (e.g., TAIR: AT1G01020; CCDC: 734053; PDB: 1XFN).

Mendeley Data
This journal supports Mendeley Data, enabling you to deposit any research data (including raw and processed data, video, code, software, algorithms, protocols, and methods) associated with your manuscript in a free-to-use, open access repository. Before submitting your article, you can deposit the relevant datasets to Mendeley Data. Please include the DOI of the deposited dataset(s) in your main manuscript file. The datasets will be listed and directly accessible to readers next to your published article online.

For more information, visit the Mendeley Data for journals page.

Data in Brief
You have the option of converting any or all parts of your supplementary or additional raw data into one or multiple data articles, a new kind of article that houses and describes your data. Data articles ensure that your data is actively reviewed, curated, formatted, indexed, given a DOI and publicly available to all upon publication. You are encouraged to submit your article for Data in Brief as an additional item directly alongside the revised version of your manuscript. If your research article is accepted, your data article will automatically be transferred over to Data in Brief where it will be editorially reviewed and published in the open access data journal, Data in Brief. Please note an open access fee of 500 USD is payable for publication in Data in Brief. Full details can be found on the Data in Brief website. Please use this template to write your Data in Brief.

Data statement
To foster transparency, we encourage you to state the availability of your data in your submission. This may be a requirement of your funding body or institution. If your data is unavailable to access or unsuitable to post, you will have the opportunity to indicate why during the submission process, for example by stating that the research data is confidential. The statement will appear with your published article on ScienceDirect. For more information, visit the Data Statement page.

AFTER ACCEPTANCE
For more information on proofreading, go to Elsevier's proofreading page https://www.elsevier.com/locate/guidepublication. Note that once your paper has been proofed, Elsevier publishes the identical paper online as in print.

Online proof correction
Corresponding authors will receive an e-mail with a link to our online proofing system, allowing annotation and correction of proofs online. The environment is similar to MS Word: in addition to editing text, you can also comment on figures/tables and answer questions from the Copy Editor. Web-based proofing provides a faster and less error-prone process by allowing you to directly type your corrections, eliminating the potential introduction of errors. If preferred, you can still choose to annotate and upload your edits on the PDF version. All instructions for proofing will be given in the e-mail we send to authors, including alternative methods to the online version and PDF.

We will do everything possible to get your article published quickly and accurately. Please use this proof only for checking the typesetting, editing, completeness and correctness of the text, tables and figures. Significant changes to the article as accepted for publication will only be considered at this stage with permission from the Editor. It is important to ensure that all corrections are sent back to us in one communication. Please check carefully before replying, as inclusion of any subsequent corrections cannot be guaranteed. Proofreading is solely your responsibility.

Offprints
The corresponding author will, at no cost, receive 25 free paper offprints, or alternatively a customized Share Link providing 50 days free access to the final published version of the article on ScienceDirect. The Share Link can be used for sharing the article via any communication channel, including email and social media. For an extra charge, paper offprints can be ordered via the offprint order form which is sent once the article is accepted for publication. Both corresponding and co-authors may order offprints at any time via Elsevier's Webshop. Corresponding authors who have published their article gold open access do not receive a Share Link as their final published version of the article is available open access on ScienceDirect and can be shared through the article DOI link.
AUTHOR INQUIRIES
Visit the Elsevier Support Center to find the answers you need. Here you will find everything from Frequently Asked Questions to ways to get in touch.
You can also check the status of your submitted article or find out when your accepted article will be published.