**DESCRIPTION**

*Discrete Mathematics* provides a common forum for significant research in many areas of **discrete mathematics** and **combinatorics**. Among the fields covered by Discrete Mathematics are graph and hypergraph theory, enumeration, coding theory, block designs, the combinatorics of partially ordered sets, extremal set theory, matroid theory, algebraic combinatorics, discrete geometry, matrices, and discrete probability theory.

Items in the journal include research articles (Contributions or Notes, depending on length) and survey/expository articles (Perspectives). Efforts are made to process the submission of Notes (short articles) quickly. The Perspectives section features expository articles accessible to a broad audience that cast new light or present unifying points of view on well-known or insufficiently-known topics.

*Discrete Mathematics* also publishes occasional Special Issues containing selected papers, often from a particular conference. Such issues are fully refereed and adhere to the normal high standards of the journal.

This journal has an **Open Archive**. All published items, including research articles, have unrestricted access and will remain permanently free to read and download 48 months after publication. All papers in the Archive are subject to Elsevier's user license.

**AUDIENCE**

Researchers in various fields of Discrete Mathematics, such as Graph Theory, Hypergraphs, Probabilistic Methods, Enumeration, and Combinatorial Designs and Coding Theory.

**IMPACT FACTOR**

2017: 0.738 © Clarivate Analytics Journal Citation Reports 2018
ABSTRACTING AND INDEXING

PASCAL/CNRS
ACM Computing Reviews
Cambridge Scientific Abstracts
Current Contents/Physics, Chemical, & Earth Sciences
Mathematical Reviews
Science Citation Index
International Abstracts in Operations Research
Scopus
Zentralblatt MATH

EDITORIAL BOARD

Editor-in-Chief:
Douglas B. West, Zhejiang Normal University, Jinhua, China, and University of Illinois, Urbana, IL, USA

Managing Editor:
Wayne Goddard, Clemson University, Clemson, South Carolina, USA

Associate Editors:
M. Bonamy, CNRS, Université de Bordeaux, Bordeaux, France
M. Buratti, Università degli Studi di Perugia, Perugia, Italy
S. Dougherty, University of Scranton, Scranton, Pennsylvania, USA
D. Král, University of Warwick, Coventry, England, UK
P. Micek, Jagiellonian University, Kraków, Poland
B. Mohar, Simon Fraser University, Burnaby, British Columbia, Canada
F. Pfender, University of Colorado Denver, Denver, Colorado, USA
K. Rosen, Monmouth University, W. Long Branch, New Jersey, USA
M. Schacht, Universität Hamburg, Hamburg, Germany
T. Szönyi, Eötvös Loránd Tudományegyetem (ELTE), Budapest, Hungary
P. Wollan, Università di Roma "La Sapienza", Rome, Italy
A.J. Yee, Penn State University, Pennsylvania, USA
X. Yu, Georgia Institute of Technology, Atlanta, Georgia, USA

Board of Editors:
M.S. Aigner, Freie Universität Berlin, Berlin, Germany
N. Alon, Tel Aviv University, Tel Aviv, Israel
B. Alspach, The University of Newcastle, Callaghan, New South Wales, Australia
G.E. Andrews, Pennsylvania State University, University Park, Pennsylvania, USA
J.-C. Bermond, Institut National de Recherche en Informatique et en Automatique (INRIA), Sophia-Antipolis, France
B. Bollobás, University of Cambridge, Cambridge, England, UK; University of memphis, Memphis, USA
R.A. Brualdi, University of Wisconsin at Madison, Madison, USA
P.J. Cameron, Queen Mary, University of London (QMUL), London, UK
P. Camion, Domaine de Volucean-Rocquencourt, Le Chesnay, France
M. Chudnovsky, Princeton University, Princeton, New Jersey, USA
F. Chung Graham, University of California at San Diego (UCSD), La Jolla, California, USA
V. Chvátal, Concordia University, Montréal, Quebec, Canada
C.J. Colbourn, Arizona State University, Tempe, Arizona, USA
P. Dukes, University of Victoria, Victoria, British Columbia, Canada
Z. Dvořák, Charles University, Prague, Czech Republic
D. Foata, Université de Strasbourg, Strasbourg, France
A.S. Fraenkel, Weizmann Institute of Science, Rehovot, Israel
P. Frankl, Peter Franki Office Ltd., Shibuya-Ku, Japan
A.M. Frieze, Carnegie Mellon University, Pittsburgh, Pennsylvania, USA
I. Gessel, Brandeis University, Waltham, Massachusetts, USA
R.L. Graham, University of California at San Diego (UCSD), La Jolla, California, USA
J. Kahn, Rutgers University, Piscataway, New Jersey, USA
G.O.H. Katona, Hungarian Academy of Sciences, Budapest, Hungary
D.J. Kleitman, Massachusetts Institute of Technology, Cambridge, Massachusetts, USA
A.V. Kostochka, University of Illinois at Urbana-Champaign, Urbana, USA
L. Lovász, Eötvös Loránd Tudományegyetem (ELTE), Budapest, Hungary
E. Miller, Duke University, Durham, North Carolina, USA
D. Mubayi, University of Illinois at Chicago, Chicago, Illinois, USA
INTRODUCTION

Discrete Mathematics provides a common forum for significant research in many areas of discrete mathematics and combinatorics. Among the fields covered by Discrete Mathematics are graph and hypergraph theory, network theory, enumeration, coding theory, block designs, the combinatorics of partially ordered sets, extremal set theory, matroid theory, algebraic combinatorics, discrete geometry, matrices, and discrete probability theory.

Items in the journal include research articles (Contributions or Notes, depending on length) and survey/expository articles (Perspectives). Efforts are made to process the submission of Notes (short articles) quickly. The Perspectives section features expository articles accessible to a broad audience that cast new light or present unifying points of view on well-known or insufficiently-known topics.

Discrete Mathematics also publishes occasional Special Issues containing selected papers, often from a particular conference. Such issues are fully refereed and adhere to the normal high standards of the journal.

Types of Papers

Contribution
Full length original research article of more than 7 journal pages, or about 10 full pages of a typical manuscript.

Note
A short self-contained original research article of at most 7 journal pages, or about 10 full pages, of a typical manuscript.

Corrigendum
Concise correction to article by the same author published in the journal. The full publication data of the original paper should be included. ScienceDirect will provide a link to the Corrigendum in the original article.

Perspectives
Expository articles of broad interest that cast a new light on well-known or insufficiently-known topics, including survey papers and papers that present the authors' unifying points of view on problems, trends, or methods. Perspectives papers are intended to be accessible to a broad cross-section of the readership.

Contact Details for Submission
The Elsevier Editorial System (EES http://ees.elsevier.com/disc/), the online submission, peer-review and editorial system for Discrete Mathematics.

Online submission to the journal prior to acceptance Submission to this journal proceeds totally online. Use the following guidelines to prepare your article. Via the Elsevier homepage (http://www.elsevier.com/) you will be guided stepwise through the creation and uploading of the various files. The system automatically converts source files to a single Adobe Acrobat PDF version of the article, which is used in the peer-review process. We also welcome the initial submission as a single manuscript file (PDF, Word, etc.) in which case separate source files do not need to be uploaded until the revision or final submission stage.

All correspondence, including notification of the Editor's decision and requests for revision, takes place by e-mail through the Elsevier Editorial System. It is essential to give a valid e-mail address when submitting a manuscript.

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

For further information, visit our Support Center.

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).

Authorship
All authors should have made substantial contributions to all of the following: (1) the conception and design of the study, or acquisition of data, or analysis and interpretation of data, (2) drafting the article or revising it critically for important intellectual content, (3) final approval of the version to be submitted.
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.

For gold open access articles: Upon acceptance of an article, authors will be asked to complete an 'Exclusive License Agreement' (more information). Permitted third party reuse of gold open access articles is determined by the author's choice of user license.

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

Elsevier supports responsible sharing
Find out how you can share your research published in Elsevier journals.

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 1500**, 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 green open access page 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.

This journal has an embargo period of 24 months, but authors can share their accepted manuscript immediately by updating a preprint in arXiv or RePEc. Uploading the accepted manuscript on arXiv does not violate the embargo period.

**Elsevier Researcher Academy**
Researcher Academy is a free e-learning platform designed to support early and mid-career researchers throughout their research journey. The "Learn" environment at Researcher Academy offers several interactive modules, webinars, downloadable guides and resources to guide you through the process of writing for research and going through peer review. Feel free to use these free resources to improve your submission and navigate the publication process with ease.

**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/ed nei) available from Elsevier's WebShop.
Submission
Submission to this journal proceeds totally online and you will be guided stepwise through the creation and uploading of your files. The system automatically converts source files to a single PDF file of the article, which is used in the peer-review process. We also welcome the initial submission as a single manuscript file (PDF, Word, etc) in which case separate source files do not need to be uploaded until the revision or final submission stage.

PREPARATION

Peer review
This journal operates a single blind review process. All contributions will be initially assessed by the editor for suitability for the journal. Papers deemed suitable are then typically sent to a minimum of one independent expert reviewer to assess the scientific quality of the paper. The Editor is responsible for the final decision regarding acceptance or rejection of articles. The Editor's decision is final. More information on types of peer review.

Language
Articles must be written in standard English. Please consult this guide to mathematical writing: http://www.math.uiuc.edu/~west/grammar.html.

LaTeX
You are recommended to use the Elsevier article class elsarticle.cls to prepare your manuscript and BibTeX to generate your bibliography. Our LaTeX site has detailed submission instructions, templates and other information.

Article structure
Abstract, Introduction, and Conclusion
The abstract should state the results as fully as possible in a brief presentation. Crucial terms without which the typical reader won't know what is being said should be defined. The abstract must stand on its own, especially in the age of electronic communication where it may be seen separately from the rest of the paper, and hence it must contain no numbered reference to the bibliography.

The first section of the paper is an 'Introduction' that should motivate the problem, discuss the related results, state more completely what the results are, and perhaps summarize the techniques or the structure of the paper. In addition, the introduction should contain the concluding remarks or key conjectures.

Essential title page information
• Title. Concise and informative. Titles are often used in information-retrieval systems. Avoid abbreviations and formulae where possible.
• 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 name and, if available, the e-mail address of each author.
• Corresponding author. Clearly indicate who will handle correspondence at all stages of refereeing and publication, also post-publication.
• 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
A concise and factual abstract is required. The abstract should state briefly the purpose of the research, the principal results and major conclusions. An abstract is often presented separately from the article, so it must be able to stand alone. For this reason, References should be avoided, but if essential, then cite the author(s) and year(s). Also, non-standard or uncommon abbreviations should be avoided, but if essential they must be defined at their first mention in the abstract itself.

Keywords
Immediately after the abstract, provide a maximum of 6 keywords, using American spelling and avoiding general and plural terms and multiple concepts (avoid, for example, 'and', 'of'). Be sparing with abbreviations: only abbreviations firmly established in the field may be eligible. These keywords will be used for indexing purposes.
Abbreviations
Define abbreviations that are not standard in this field in a footnote to be placed on the first page of the article. Such abbreviations that are unavoidable in the abstract must be defined at their first mention there, as well as in the footnote. Ensure consistency of abbreviations throughout the article.

Acknowledgements
Collate acknowledgements in a separate section at the end of the article before the references and do not, therefore, include them on the title page, as a footnote to the title or otherwise. List here those individuals who provided help during the research (e.g., providing language help, writing assistance or proof reading the article, etc.).

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.

Math formulae
Please submit math equations as editable text and not as images. Present simple formulae in line with normal text where possible and use the solidus (/) instead of a horizontal line for small fractional terms, e.g., X/Y. In principle, variables are to be presented in italics. Powers of e are often more conveniently denoted by exp. Number consecutively any equations that have to be displayed separately from the text (if referred to explicitly in the text).

Please consult this guide to mathematical writing: http://www.math.uiuc.edu/~west/grammar.html.

Artwork
Electronic 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.
- Aim to use the following fonts in your illustrations: Arial, Courier, Times New Roman, Symbol, or use fonts that look similar.
- Number the illustrations according to their sequence in the text.
- Use a logical naming convention for your artwork files.
- Provide captions to illustrations separately.
- 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.

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 & 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.

Figure captions
Ensure that each illustration has a caption. Supply captions separately, not attached to the figure. 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.

Text graphics
Text graphics may be embedded in the text at the appropriate position. If you are working with LaTeX and have such features embedded in the text, these can be left. See further under Electronic artwork.

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
Citation in text
Please ensure that every reference cited in the text is also present in the reference list (and vice versa). Any references cited in the abstract must be given in full. Unpublished results and personal communications are not recommended in the reference list, but may be mentioned in the text. If these references are included in the reference list they should follow the standard reference style of the journal and should include a substitution of the publication date with either 'Unpublished results' or 'Personal communication'. Citation of a reference as 'in press' implies that the item has been accepted for publication.

Web references
As a minimum, the full URL should be given and the date when the reference was last accessed. Any further information, if known (DOI, author names, dates, reference to a source publication, etc.), should also be given. Web references can be listed separately (e.g., after the reference list) under a different heading if desired, or can be included in the reference list.

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.

References in a special issue
Please ensure that the words 'this issue' are added to any references in the list (and any citations in the text) to other articles in the same Special Issue.

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 and Zotero, as well as EndNote. Using the word processor 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.

Users of Mendeley Desktop can easily install the reference style for this journal by clicking the following link:
http://open.mendeley.com/use-citation-style/discrete-mathematics
When preparing your manuscript, you will then be able to select this style using the Mendeley plug-ins for Microsoft Word or LibreOffice.
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 alphabetic order, by the last name of the first author.

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

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.

AudioSlides

The journal encourages authors to create an AudioSlides presentation with their published article. AudioSlides are brief, webinar-style presentations that are shown next to the online article on ScienceDirect. This gives authors the opportunity to summarize their research in their own words and to help readers understand what the paper is about. More information and examples are available. Authors of this journal will automatically receive an invitation e-mail to create an AudioSlides presentation after acceptance of their paper.

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.

AFTER ACCEPTANCE

Publication

After the production and typesetting processes, accepted regular articles go directly into a printed issue. Articles that remain as ‘Articles in Press’ are accumulating for Special Issues.

Proofs

One set of page proofs (as PDF files) will be sent by e-mail to the corresponding author (if we do not have an e-mail address then paper proofs will be sent by post) or, a link will be provided in the e-mail so that authors can download the files themselves. Elsevier now provides authors with PDF proofs which can be annotated; for this you will need to download the free Adobe Reader, version 9 (or higher). Instructions on how to annotate PDF files will accompany the proofs (also given online). The exact system requirements are given at the Adobe site.
If you do not wish to use the PDF annotations function, you may list the corrections (including replies to the Query Form) and return them to Elsevier in an e-mail. Please list your corrections quoting line number. If, for any reason, this is not possible, then mark the corrections and any other comments (including replies to the Query Form) on a printout of your proof and scan the pages and return via e-mail. 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. We will do everything possible to get your article published quickly and accurately. 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 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.

**Additional information**

**Discount**
Contributors to Elsevier journals are entitled to a 30% discount on all Elsevier books. Please see the Author Services page for more information: http://www.elsevier.com/authors/author-services.

**Funding body agreements and policies**
Elsevier has established agreements and developed policies to allow authors who publish in Elsevier journals to comply with potential manuscript archiving requirements as specified as conditions of their grant awards. To learn more about existing agreements and policies please visit: http://www.elsevier.com/fundingbodies

**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.

© Copyright 2018 Elsevier | https://www.elsevier.com