DESCRIPTION

*Electrochimica Acta* is an international journal. It is intended for the publication of both original work and reviews in the field of *electrochemistry*. Electrochemistry should be interpreted to mean any of the research fields covered by the Divisions of the *International Society of Electrochemistry* listed below, as well as emerging scientific domains covered by ISE New Topics Committee.

**ISE Divisions:**

1. Analytical Electrochemistry
2. Bioelectrochemistry
3. Electrochemical Energy Conversion and Storage
4. Electrochemical Materials Science
5. Electrochemical Process Engineering and Technology
6. Molecular Electrochemistry
7. Physical Electrochemistry

*Electrochimica Acta* is the official journal of the *International Society of Electrochemistry (ISE)*. The ISE was founded in 1949 by leading European and American electrochemists to serve the growing needs of electrochemistry. Since then the ISE has evolved to comprise more than 2000 individual members, from more than 60 countries. Visit their homepage at [http://www.ise-online.org](http://www.ise-online.org).

The journal will not publish papers which have appeared partially or completely in other journals, which plagiarize other works or are incompletely referenced. All manuscripts are routinely screened for similarity with the published record. High levels of duplication will automatically result in rejection without review. Authors should also bear in mind that even a moderate level of duplication diminishes the originality of the manuscript and may thereby jeopardize the possibility of the paper being selected for publication. Verification will be performed using the Crossref Similarity Check software. See for further details: [http://www.ithenticate.com/products/crosscheck](http://www.ithenticate.com/products/crosscheck)

AUDIENCE

Research Scientists involved in fundamental electrochemistry, electrode and electrolyte materials, analytical electrochemistry, electrochemical energy conversion, corrosion, electrodeposition and surfacetreatment, electrochemical engineering, bioelectrochemistry.
EDITORIAL BOARD

Editor in Chief
A.R. Hillman, Dept. of Chemistry, University of Leicester, Leicester, England, UK

Managing Editor
A. Beresford-Laycock, Lightmoor, Shropshire, UK

Special Issue Editor
S. Trasatti, Department of Chemistry, University of Milan, Milan, Italy

Editors
P. Allongue, Lab. de Physique d/l Matière Condensée, École Polytechnique, Palaiseau, France
G. Attard, Cardiff, UK
N. Birbilis, College of Engineering and Computer Science, Australian National University, Acton, ACT, Australia
A. Chen, Dept. of Chemistry, University of Guelph, Guelph, Ontario, Canada
E. Feraapontova, Interdisciplinary Nanoscience Ctr. (INANO), Aarhus University, Aarhus, Denmark
L. Hardwick, Dept. of Chemistry, University of Liverpool, Liverpool, UK
D Jones, Institut Charles Gerhardt Montpellier, CNRS Montpellier, Montpellier, France
R. Kostecki, Energy Storage and Distributed Resources Division, Lawrence Berkeley National Laboratory, Berkeley, California, USA
R. Kütz, Lab. for Electrochemistry, Paul Scherrer Institut (PSI), Villigen, PSI, Switzerland
P.J. Kulesza, Department of Chemistry, University of Warszawski, Warsaw, Poland
T. Matsue, Graduate School of Environmental Studies, Tohoku University, Sendai, Japan
A. Molina, Dept. of Physical Chemistry, Universidad de Murcia, Espinardo, Murcia, Spain
S. Sotiropoulos, Dept. of Chemistry, Aristotle University of Thessaloniki, Thessaloniki, Greece
S.-G. Sun, Dept. of Chemistry, Xiamen University, Xiamen, China
J-P. Tu, Department of Materials Science and Engineering, Zhejiang University, Hangzhou, China

Advisory Board
A Balducci, Institute for Technical Chemistry and Environmental Chemistry, Friedrich-Schiller-Universität Jena, Jena, Germany
F. Bedioui, Unité de Technologies Chimiques et Biologiques pour la Santé, Université Paris Descartes, Paris Cedex 05, France
D. Bélanger, Dept. de Chimie, Université du Quebec à Montreal (UQAM), Montreal, Quebec, Canada
J. Bobacka, Lab. of Analytical Chemistry, Åbo Akademi University, Turku-Åbo, Finland
V. di Noto, Dept. of Chemical Sciences, Università degli Studi di Padova, Padova, Italy
M. Forsyth, Inst. for Frontier Materials, Deakin University, Geelong, Victoria, Australia
T. Homma, Dept. of Applied Chemistry, Waseda University, Tokyo, Japan
P. Lianos, School of Engineering, University of Patras, Patras, Greece
E. Lojou, CNRS, BIP, UMR 7281, Aix Marseille Université, Marseille Cedex 20, France
J. Ludvik, Molecular Electrochemistry Dept, J. Heyrovský Institute of Physical Chemistry, Prague 8, Czech Republic
M. Osawa, Catalysis Research Center, Hokkaido University, Sapporo, Japan
V. Vivier, LISE UMR 8235, Sorbonne Université, Paris Cedex 05, France
GUIDE FOR AUTHORS

INTRODUCTION
Technical Editorial Issues - Checklist (Please click here for PDF)
The Journal publishes full-length research papers, critical reviews and discussion papers in the field of electrochemical science; this includes both pure and applied electrochemistry. Contributions from members and non-members of the International Society of Electrochemistry are equally welcome. Preliminary Notes are no longer published by Electrochimica Acta. Manuscripts of this type should be sent to Electrochemistry Communications (Editor-in-Chief R G Compton; see: https://www.elsevier.com/locate/elecom).

Contributions will only be considered for publication in Electrochimica Acta if they are likely to be of interest to readers and subscribers of the journal and comply with the ethical guidelines for journal publication. All manuscripts are screened by the editors, who check that the content and primary themes of manuscripts fall within the remit of the journal. Manuscripts whose content lies outside the remit of the journal will be declined without being sent for review. In particular, papers reporting experimental data without adequate interpretation are not acceptable. Papers devoted to applications of well-established techniques to technical problems are as a rule not accepted. A low scientific level of the work or insufficient clarity of language can also be a reason for rejection at first sight if this places the manuscript below an acceptable level of clarity. Detailed descriptions of apparatus etc. should only be given if such apparatus is new. Papers are expected to contain mechanistic analysis relevant to electrochemistry. The use of an electrochemical technique does not necessarily turn an otherwise non-electrochemical subject into an electrochemical piece of work. Contributions deemed within the remit of the journal will be accepted for publication only on the recommendation of referees. Primary criteria in the selection of manuscripts for publication are originality and the significance of the outcomes.

The journal will not publish papers which have appeared partially or completely in other journals, which plagiarize other works or are incompletely referenced. All manuscripts are routinely screened for similarity with the published record. High levels of duplication will automatically result in rejection without review. Authors should also bear in mind that even a moderate level of duplication diminishes the originality of the manuscript and may thereby jeopardize the possibility of the paper being selected for publication. Verification will be performed using the Crossref Similarity Check software. See for further details: http://www.ithenticate.com/products/crosscheck.

Types of papers
Research Papers should be complete and authoritative accounts of work that has special significance and general interest, presented clearly and concisely. Critical Reviews are commissioned by the Editor-in-Chief. Authors intending to offer critical reviews are advised first to contact the Editor-in-Chief. Discussion Papers contain critical comments on papers already published in the Journal. Comments will be submitted to the Authors of the paper under discussion. Eventual replies will be published jointly with the comments in a special section of the Journal labeled "Discussion Section" at the end of an ordinary issue. Publication will occur only on agreement of both parts.

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).

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.

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)**
Let 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 3400, 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 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.

**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 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.

**Referees**
The Editors reserve the right to decline to publish manuscripts which they consider inappropriate for Electrochimica Acta. When submitting their paper authors should supply the names and addresses (including e-mail addresses) of 3 suitable referees. The editors usually ask up to 3 referees to review each paper.

Guided by referees' reports, the editors will place each manuscript in one of four categories:
a) to be accepted for publication,
b) to be reconsidered, after the authors have had an opportunity to make recommended revisions and reply in detail to referees’ comments,
c) to be rejected, with an invitation to the authors to submit an extensively revised manuscript (reject provisionally or in the present form). The revision will be treated as a new manuscript, with the difference that it must be accompanied by a set of detailed replies to all issues raised by the referees of the original manuscript,
d) to be rejected. Papers in this category should not be resubmitted, however revised.

**PREPARATION**

*Use of Word processing software*

It is important that the file be saved in the native format of the wordprocessor used. All contributions should be typed, double-spaced, 12-pt font. All pages must be numbered in sequence. Most formatting codes will be removed and replaced on processing the article. In particular, do not use the wordprocessor's options to justify text or to hyphenate words. However, do use bold face, italics, subscripts, superscripts etc. Do not embed graphically designed equations or tables, but prepare these using the wordprocessor's facility. 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/guidepublication. Do not import the figures into the text file but, instead, indicate their approximate locations directly in the electronic text and on the manuscript. See also the section on Electronic illustrations.

*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.

Manuscripts typed in two columns reproducing the printed version of the Journal will be returned to the Authors. Such a format is very inconvenient for reviewers since there is no space for notes in particular between the lines.

Do not submit your manuscript as a PDF but use Word or LaTeX.

**Article structure**

*Subdivision - numbered sections*

Divide your article into clearly defined and numbered sections. Subsections should be numbered 1.1 (then 1.1.1, 1.1.2, ...), 1.2, etc. (the abstract is not included in section numbering). Use this numbering also for internal cross-referencing: do not just refer to 'the text'. Any subsection may be given a brief heading. Each heading should appear on its own separate line.

*Introduction*

State the objectives of the work and provide an adequate background, avoiding a detailed literature survey or a summary of the results.

*Experimental*

Provide sufficient details to allow the work to be reproduced by an independent researcher. Methods that are already published should be summarized, and indicated by a reference. If quoting directly from a previously published method, use quotation marks and also cite the source. Any modifications to existing methods should also be described.

*Theory/ calculations (if appropriate)*

A Theory section should extend, not repeat, the background to the article already dealt with in the Introduction and lay the foundation for further work. In contrast, a Calculation section represents a practical development from a theoretical basis.

*Results and discussion*

Results should be clear and concise. A combined Results and Discussion section is often preferred but separate sections "Results" and "Discussion" may also be appropriate. The latter should explore the significance of the results of the work, not repeat them. Avoid extensive citations and discussion of published literature.

*Conclusions*

The main conclusions of the study may be presented in a short Conclusions section.
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.).

Appendices
If there is more than one appendix, they should be identified as A, B, etc. Formulae and equations in appendices should be given separate numbering: Eq. (A.1), Eq. (A.2), etc.; in a subsequent appendix, Eq. (B.1) and so on. Similarly for tables and figures: Table A.1; Fig. A.1, etc.

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. Please clearly indicate the given name(s) and family name(s) of each author and check that all names are accurately spelled. Present the authors' affiliation addresses (where the actual work was done) below the names. Indicate all affiliations with a lowercase 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. If an affiliation is given for an author, a corresponding institutional e-mail address will need to be provided, otherwise the manuscript will not be considered for publication. Next to the institutional e-mail address a personal e-mail address may be provided for each author.
• Corresponding author. Clearly indicate who will handle correspondence at all stages of refereeing and publication, also post-publication. Ensure that an institutional e-mail address is given if the corresponding author is affiliated to an institute and that contact details are kept up to date by the corresponding author.
• 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.

Graphical abstract
Although a graphical abstract is optional, its use is encouraged as it draws more attention to the online article. The graphical abstract should summarize the contents of the article in a concise, pictorial form designed to capture the attention of a wide readership. 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 and in accordance with all technical requirements.

Highlights
Highlights are a short collection of bullet points that convey the core findings of the article. Highlights are optional and should be submitted in a separate file in the online submission system. Please include 3 to 5 bullet points (max. 85 characters per bullet point including spaces). See https://www.elsevier.com/researchhighlights for examples.

Note: for Asian authors, interpreting a character as a word, max 85 characters per bullet point corresponds with approx. 20 words max per bullet point.

Keywords
Immediately after the abstract, provide a maximum of five (5) keywords, using American spelling and avoiding general terms (such as: "electrode") and plural terms (such as: "and", "of") Be sparing with abbreviations: only abbreviations firmly established in the field may be eligible.
**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.

**Symbols and Units**

Each paper should be consistent within itself as to abbreviations, symbols and units. These should conform to IUPAC recommendations. Authors should use SI units wherever possible and when these are not used should provide a conversion factor to SI units. Axes for graphs and headings for tables should be given in quantity calculus form, eg time as t/s, potential as E/mV, current density as j/A cm⁻². Any electrochemical abbreviations should be written in lower case without stops, for example emf, ac.

**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).

**Footnotes**

Footnotes should be used sparingly. Number them consecutively throughout the article. Many word processors can build footnotes into the text, and this feature may be used. Otherwise, please indicate the position of footnotes in the text and list the footnotes themselves separately at the end of the article. Do not include footnotes in the Reference list.

**Electronic camera ready copy (e-CRC)**

**General points**: Elsevier can only accept MS Word, LaTeX, or postscript/PDF documents as electronic camera-ready copy (e-CRC). Electronic files can be stored on CD or may be transferred to Elsevier via FTP (details available from Customer support: service.elsevier.com).

**MS Word file**: Please ensure that you use normal fonts as much as possible in your documents, such as Times New Roman, Arial, Symbol, Helvetica, or Times (TrueType or Type 1 fonts). Special fonts, such as those used in the Far East (Japanese, Chinese, Korean, etc.) may be cause problems during processing. If you use a lot of special fonts, please convert the document to PDF with Adobe Acrobat (see below, and also Elsevier’s Quickguide: https://www.elsevier.com/authors/journal-authors/submit-a-paper). Please place figures in a logical place within the document (see also the section on Preparation of electronic illustrations at https://www.elsevier.com/artworkinstructions). To avoid unnecessary errors you are strongly advised to use the “spellchecker” function of your wordprocessor.

**LaTeX documents**: Please use a LaTeX setup that uses Type 1 fonts instead of the sometimes default bitmap fonts (Type 3, or pk fonts). For instance, using the LaTeX Times package may be enough to enable this adjustment. For information on LaTeX see https://www.elsevier.com/latex. Please provide all document-related and temporary files on submission, as well as the resulting postscript or PDF file.

**Postscript/PDF files**: Please create postscript files, making sure all fonts are embedded. When creating PDF files with Adobe Acrobat, please use version 4.05 or higher, and use the standard "Press Optimized" settings, as provided by Adobe.

Supplementary data: Supplementary material can support and enhance your scientific research. Supplementary files offer the author additional possibilities to publish supporting applications, high-resolution images, background datasets, sound clips and more (it is not intended as a means to extend the length of your paper). Please note that such items are published online exactly as they
are submitted; there is no typesetting involved (supplementary data supplied as an Excel file or as
a PowerPoint slide will appear as such online). Please submit the material together with the article
and supply a concise and descriptive caption for each file. If you wish to make any changes to
supplementary data during any stage of the process, then please make sure to provide an updated
file, and do not annotate any corrections on a previous version. Please also make sure to switch off the
'Track Changes' option in any Microsoft Office files as these will appear in the published supplementary
file(s). For more detailed instructions please visit our artwork instruction pages

Artwork

Image manipulation

Whilst it is accepted that authors sometimes need to manipulate images for clarity, manipulation for
purposes of deception or fraud will be seen as scientific ethical abuse and will be dealt with accordingly.
For graphical images, this journal is applying the following policy: no specific feature within an image
may be enhanced, obscured, moved, removed, or introduced. Adjustments of brightness, contrast,
or color balance are acceptable if and as long as they do not obscure or eliminate any information
present in the original. Nonlinear adjustments (e.g. changes to gamma settings) must be disclosed
in the figure legend.

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 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.

Figures

Figures must be numbered in sequence and the number must be placed close to the figures. Figures
should not be embedded in the text document. Figures should be placed at the end of the manuscript,
with a maximum of two figures per page. Figures not identified by a number are not acceptable.
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. Ensure that each illustration has a caption. 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. Figures not identified by a number and caption are not acceptable. For review purposes appropriate captions should be placed beneath each illustration, but not embedded within the illustration. If this is not possible, all figure captions must be provided on a separate page immediately following the manuscript and authors must advise of this in the accompanying cover letter.

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
Number tables consecutively with Arabic numbers in accordance with their appearance in the text. Place footnotes to tables below the table body and indicate them with superscript lowercase letters. Avoid vertical rules. Be sparing in the use of tables and ensure that the data presented in tables do not duplicate results described elsewhere in the article.

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.

Reference links
Increased discoverability of research and high quality peer review are ensured by online links to the sources cited. In order to allow us to create links to abstracting and indexing services, such as Scopus, CrossRef and PubMed, please ensure that data provided in the references are correct. Please note that incorrect surnames, journal/book titles, publication year and pagination may prevent link creation. When copying references, please be careful as they may already contain errors. Use of the DOI is highly encouraged.

A DOI is guaranteed never to change, so you can use it as a permanent link to any electronic article. An example of a citation using DOI for an article not yet in an issue is: VanDecar J.C., Russo R.M., James D.E., Ambeh W.B., Franke M. (2003). Aseismic continuation of the Lesser Antilles slab beneath northeastern Venezuela. Journal of Geophysical Research, https://doi.org/10.1029/2001JB000884. Please note the format of such citations should be in the same style as all other references in the paper.

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. 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:
http://open.mendeley.com/use-citation-style/electrochimica-acta

When preparing your manuscript, you will then be able to select this style using the Mendeley plug-ins for Microsoft Word or LibreOffice.

Reference formatting

There are no strict requirements on reference formatting at submission. References can be in any style or format as long as the style is consistent. Where applicable, author(s) name(s), journal title/book title, chapter title/article title, year of publication, volume number/book chapter and the article number or pagination must be present. Use of DOI is highly encouraged. The reference style used by the journal will be applied to the accepted article by Elsevier at the proof stage. Note that missing data will be highlighted at proof stage for the author to correct. If you do wish to format the references yourself they should be arranged according to the following examples:

Reference style

Reference management software

This journal has standard templates available in key reference management packages EndNote (http://www.endnote.com/support/enstyles.asp) and Reference Manager (http://refman.com/support/rmstyles.asp). Using plug-ins to wordprocessing packages, authors only need to select the appropriate journal template when preparing their article and the list of references and citations to these will be formatted according to the journal style which is described below.

Reference style

References should be indicated in the text in square brackets on the same line and listed at the end of the paper as follows:

Multiple references under a same number do not fit in with the standard of the Journal and should be avoided.

Journal abbreviations source

Journal names should be abbreviated according to the List of Title Word Abbreviations.

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 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 files in one of our recommended file formats with a maximum size of 10 MB. Video and
animation files supplied will be published online in the electronic version of your article in Elsevier Web products, including ScienceDirect: http://www.sciencedirect.com. 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 at https://www.elsevier.com/artworkinstructions. 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. These should not be submitted as Supplementary data since they are integral part of the manuscript.

**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.

**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. During the submission process, after uploading your manuscript, you will have the opportunity to upload your relevant datasets directly to Mendeley Data. 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 available.
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.

**MethodsX**
You have the option of converting relevant protocols and methods into one or multiple MethodsX articles, a new kind of article that describes the details of customized research methods. Many researchers spend a significant amount of time on developing methods to fit their specific needs or setting, but often without getting credit for this part of their work. MethodsX, an open access journal, now publishes this information in order to make it searchable, peer reviewed, citable and reproducible. Authors are encouraged to submit their MethodsX article as an additional item directly alongside the revised version of their manuscript. If your research article is accepted, your methods article will automatically be transferred over to MethodsX where it will be editorially reviewed. Please note an open access fee is payable for publication in MethodsX. Full details can be found on the MethodsX website. Please use this template to prepare your MethodsX article.

**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**

**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 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.

**Electrochemical Calendar**
Material for the Calendar should be sent to the Editor-in-Chief, Conference organizers are asked to submit details at least six months before the date of the event.

**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