Surface Science is devoted to elucidating the fundamental aspects of chemistry and physics occurring at a wide range of surfaces and interfaces and to disseminating this knowledge fast. The journal welcomes a broad spectrum of topics, including but not limited to:

- model systems (e.g. in Ultra High Vacuum) under well-controlled reactive conditions
- nanoscale science and engineering, including manipulation of matter at the atomic/molecular scale and assembly phenomena
- reactivity of surfaces as related to various applied areas including heterogeneous catalysis, chemistry at electrified interfaces, and semiconductors functionalization
- phenomena at interfaces relevant to energy storage and conversion, and fuels production and utilization
- surface reactivity for environmental protection and pollution remediation
- interactions at surfaces of soft matter, including polymers and biomaterials.

Both experimental and theoretical work, including modeling, is within the scope of the journal. Work published in Surface Science reaches a wide readership, from chemistry and physics to biology and materials science and engineering, providing an excellent forum for cross-fertilization of ideas and broad dissemination of scientific discoveries.

Benefits to authors
We also provide many author benefits, such as free PDFs, a liberal copyright policy, special discounts on Elsevier publications and much more. Please click here for more information on our author services.

Please see our Guide for Authors for information on article submission. If you require any further information or help, please visit our Support Center

Audience
Surface scientists (physicists, chemists, chemical engineers, bioengineers, electrochemists, solid-state physicists and materials scientists), scientists studying other interfaces, including biological and wet interfaces, or surface effects in nanomaterials.

Impact Factor
2018: 1.849 © Clarivate Analytics Journal Citation Reports 2019
ABSTRACTING AND INDEXING

Aluminium Industry Abstracts
El Compendex Plus
Chemical Abstracts
Current Contents - Physical, Chemical & Earth Sciences
INSPEC
Metals Abstracts
Scopus
Science Citation Index

EDITORIAL BOARD

Editor-in-Chief
M. Mavrikakis, University of Wisconsin-Madison College of Engineering, 1415 Engineering Drive, Madison, Wisconsin, WI 53706, United States
Heterogeneous Catalysis and Surface Science, First-principles calculations, transition metals and alloys surfaces, atomic-scale catalyst design, reaction mechanisms, microkinetic modeling

Editors
H. Bluhm, Fritz-Haber-Institut der Max-Planck-Gesellschaft, 14195, Berlin, Germany
in situ and operando spectroscopy, synchrotron-based core level spectroscopy, aqueous interfaces, surface reactions, buried interfaces, heterogeneous catalysis, surface chemistry in the environment and atmosphere
K. Fukui, Osaka University School of Engineering Graduate School of Engineering, 2-1 Yamada-oka, Suita, 565-0871, Osaka, Japan
H-P. Steinrück, Friedrich Alexander University Erlangen-Nurnberg Chair of Physical Chemistry II, Egerlandstrasse 3, D-91058, Erlangen, Germany

Advisory Editorial Board
N.L. Abbott, Cornell University School of Chemical and Biomolecular Engineering, 113 Ho Plaza, Ithaca, New York, 14853-5201, United States
S. L. Anderson, University of Utah Department of Chemistry, 315 South 1400 East, Salt Lake City, Utah, 84112-0850, United States
M.S. Arnold, University of Wisconsin-Madison Department of Materials Science and Engineering, 248 MS&E Building, 1509 University Avenue, Madison, Wisconsin, WI 53706, United States
T. Aruga, Kyoto Daigaku Rigaku Kenkyuka Rigakubu Chikyu Wakusei Kagaku Senko Chikyu Butsurgaku, Kitashirakawa, Sakyo-ku, 606-8502, Kyoto, Japan
C.J. Baddeley, University of St Andrews EaSTCHEM Research School, North Haugh, Fife, KY16 9ST, St. Andrews, United Kingdom
P. Balbuena, Texas A&M University Artie Mcferrin Department Of Chemical Engineering, 3122 TAMU, College Station, Texas, 77843, United States
S.F. Bent, Stanford University Department of Chemical and Systems Biology, 381 North South Mall, Stanford, California, CA 94305-5025, United States
M. Bowker, Cardiff University Cardiff School of Chemistry, Main building, Parc Place, CF10 3AT, Cardiff, United Kingdom
C.T. Campbell, University of Washington Department of Chemistry, Bagley Hall, Box 351700, Seattle, Washington, 98195-1700, United States
Z. Dohnálek, EMSL (Environmental Molecular Sciences Laboratory), Pacific Northwest National Laboratory, P.O. Box 999, K-8-93, Richland, Washington, 99352, United States
J. Evans, Iowa State University Department of Physics and Astronomy, Ames, , Iowa, USA
H.-J. Freund, Fritz-Haber-Institut der Max-Planck-Gesellschaft, 14195, Berlin, Germany
A.J. Gellman, Carnegie Mellon University Department of Chemical Engineering, 5000 Forbes Avenue, Pittsburgh, Pennsylvania, PA 15213, United States
L. Grabow, University of Houston, Department of Chemical & Biomolecular Engineering, TX 77204-4004, Houston, Texas, , United States
G. Granozzi, Universita degli Studi di Padova Dipartimento di Scienze Chimiche, via Marzolo Francesco 1, 35131, Padova, Italy
A. Gross, University of Ulm Institute for Theoretical Chemistry, 89069, Ulm, Germany
G. Henkelman, University of Texas at Austin Department of Biomedical Engineering, 107 West Dean Keeton Street, Austin, Texas, TX 78712-1062, United States
K. Honkala, University of Jyväskyla Nanoscience Center, P.O.Box 35, 40014, Jyväskylä, Finland
F. Illas, University of Barcelona Faculty of Chemistry, Marti i Franques 1, 08028, Barcelona, Spain
W.X. Li, University of Science and Technology of China Department of Chemical Physics, 230026, Hefei, China
E. Lundgren, Lund University, Dept. of Physics, Synchrotron Radiation Research, Box 118, 221 00, Lund, Sweden
D. Maroudas, University of Massachusetts at Amherst Department of Chemical Engineering, 686 North Pleasant St., Amherst, Massachusetts, MA 01003-9303, United States
M.M. Murnane, JILA, Boulder, Colorado, 80309-0440, United States
J.K. Nørskov, Technical University of Denmark Department of Physics, 2800, Kogens Lyngby, Denmark
G. Pacchioni, Universita degli Studi di Milano-Bicocca Dipartimento di Scienza dei Materiali, via Roberto Cozzi 55, 20126, Milano, Italy
X. Qiu, National Center for Nanoscience and Technology, China, Zhong Guan Cun, Bei Yi Tiao No. 11, 100190 Beijing, China
S. Schauermann, Institut für Physikalische Chemie, Christian-Albrechts-Universität zu Kiel, Ludewig-Meyn-Str. 8, 24118, Kiel, Germany
A. Selloni, Princeton University Department of Chemistry, Washington Road and William Street, Princeton, New Jersey, 08544-1009, United States
V. Stamenkovic, Argonne National Laboratory Materials Science Division, 9700 S. Cass Avenue, MSD223-B137, Argonne, Illinois, IL 60439-4845, United States
M. Sterrer, Karl-Franzens Universitat Institut fur Physik, Universitaetsplatz 5, 8010, Graz, Austria
S. L. Tait, Indiana University Bloomington Department of Chemistry, 800 East Kirkwood Avenue, Bloomington, Indiana, 47405-7102, United States
A.V. Teplyakov, University of Delaware Department of Chemistry and Biochemistry, Newark, Delaware, 19716, United States
J. Vohs, University of Pennsylvania Department of Chemical and Biomolecular Engineering, 220 S. 33rd Street, Room 311A, Philadelphia, Pennsylvania, PA 19104-6393, United States
J.F. Weaver, University of Florida Department of Chemical Engineering, P.O. Box 116005, Gainesville, Florida, FL 32611-6005, United States
J. Wintterlin, Ludwig Maximilian University Munich Department of Chemistry, Butenandtstrasse 5-13, 81377, Munchen, Germany
J. Zhu, University of Science and Technology of China (USTC), National Synchrotron Radiation Lab, 42 South Hezuohua Road, 230029, Hefei, China
GUIDE FOR AUTHORS

Types of paper
Regular Papers and Letters

Full length (regular) papers not previously published nor posted on the web. Letters, 1800-2500 words, reporting important results that justify priority handling. Invited review/perspective articles. If you are interested in contributing such type of paper, please consult the editor-in-chief first.

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 conflicts of interest include employment, consultancies, stock ownership, honoraria, paid expert testimony, patent applications/registrations, and grants or other funding. Authors should complete the declaration of interest statement using this template and upload to the submission system at the Attach/Upload Files step. If there are no interests to declare, please choose: 'Declarations of interest: none' in the template. This statement will be published within the article if accepted. 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').

Author contributions
For transparency, we encourage authors to submit an author statement file outlining their individual contributions to the paper using the relevant CRediT roles: Conceptualization; Data curation; Formal analysis; Funding acquisition; Investigation; Methodology; Project administration; Resources; Software; Supervision; Validation; Visualization; Roles/Writing - original draft; Writing - review & editing. Authorship statements should be formatted with the names of authors first and CRediT role(s) following. More details and an example

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.

Open access
Please visit our Open Access page for more information.

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 Author Services.

Submission
Submission to this journal proceeds totally online and you will be guided stepwise through the creation and uploading of your files. For initial submission, a single file with embedded figures and tables is sufficient, providing the figures are of suitable quality (screen resolution) for reviewing purposes. If your manuscript describes any crystal structure, either measured or calculated theoretically (which is almost always the case for quantum mechanical calculations of a structure), you are also required to either attach a file as 'Supplementary Data' for online publication that lists all atomic positions in this crystal structure, or list that same information directly within the paper itself. If experimental data were used to determine this crystal structure, please also include the full data set as 'Supplementary Data' for online publication. These must be entered before the paper can be sent to referees for review. See section below on 'Supplementary Data' for instructions on how to submit.

Once a paper has been accepted you are expected to upload separate figures in high resolution for production of the printed article. All correspondence, including notification of the Editor's decision and requests for revision, takes place by e-mail removing the need for a paper trail.

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

Additional information
This journal allows only ONE corresponding author, who is the individual ultimately responsible for the scientific and ethical integrity of this submission. All communications associated with submission and review must be from / to this same individual.

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 two independent expert reviewers 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.
Use of wordprocessing software

It is important that the file be saved in the native format of the wordprocessor used. The text should be in single-column format. Keep the layout of the text as simple as possible. Most formatting codes will be removed and replaced on processing the article. In particular, do not use the 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). See also the section on Electronic illustrations.

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

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.

Material and methods

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/calculation

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

Results should be clear and concise.

Discussion

This should explore the significance of the results of the work, not repeat them. A combined Results and Discussion section is often appropriate. Avoid extensive citations and discussion of published literature.

Conclusions

The main conclusions of the study may be presented in a short Conclusions section, which may stand alone or form a subsection of a Discussion or Results and Discussion section.

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. You can add your name between parentheses in your own script behind the English transliteration. 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. This responsibility includes answering any future queries about Methodology and Materials. **Ensure that the e-mail address is given 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.

**Highlights**
Highlights are mandatory for this journal as they help increase the discoverability of your article via search engines. They consist of a short collection of bullet points that capture the novel results of your research as well as new methods that were used during the study (if any). Please have a look at the examples here: example Highlights.

Highlights should be submitted in a separate editable file in the online submission system. Please use 'Highlights' in the file name and include 3 to 5 bullet points (maximum 85 characters, including spaces, per bullet point).

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

**Keywords**
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).

**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.

**Artwork**

**Electronic artwork**

**General points**

- Submit initially a complete manuscript file for review purposes only, with figures and tables embedded directly within the text where appropriate, so they are easy for the reviewers to find and see. This may be a pdf.
- Make sure you use uniform lettering and sizing of your original artwork.
- Save text in illustrations as "graphics" or enclose the font.
- Only use the following fonts in your illustrations: Arial, Courier, Times, Symbol.
- Number the illustrations according to their sequence in the text.
- Use a logical naming convention for your artwork files.
- After your paper has been accepted you will need to submit high resolution figures suitable for printing. Each figure should be uploaded as a separate file.

*When submitting final, high-resolution artwork (after your article is accepted)*

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

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

**Formats**

Regardless of the application used, when your electronic artwork is finalised, 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:** Vector drawings. Embed the font or save the text as "graphics".
- **TIFF:** color or grayscale photographs (halftones): always use a minimum of 300 dpi.
- **TIFF:** Bitmapped line drawings: use a minimum of 1000 dpi.
- **TIFF:** Combinations bitmapped line/half-tone (color or grayscale): a minimum of 500 dpi is required.

**DOC, XLS or PPT:** If your electronic artwork is created in any of these Microsoft Office applications please supply "as is".

**Please do not:**

- Supply files that are optimised for screen use (like GIF, BMP, PICT, WPG); the resolution is too low;
- 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.
**Figure Captions**
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.

**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**

**Related Work**
The Editor must be informed at the time of submission, of related work by any of the authors which is under consideration for publication in any medium. This work must be cited in the manuscript. If the related work is not available because it is in press (accepted), submitted, or in preparation for submission to this or another journal, the author must upload at the time of submission a copy of each related paper as "Supporting Information for Review Only" for use by the reviewers and the Editors. If a cited reference has already been published, the submitting author must indicate that it is published electronically and provide the DOI number. The full journal citation should be completed during manuscript revision or page proof correction.

**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. 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/surface-science
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 the order in which they appear in the text.

*Examples:*

Reference to a journal publication:


Reference to a journal publication with an article number:


Reference to a book:


Reference to a chapter in an edited book:


Reference to a website:


Reference to a dataset:


*Journal abbreviations source*

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

**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.

**Data visualization**

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

**Supplementary material**

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

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

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

**Data linking**

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

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

For supported data repositories a repository banner will automatically appear next to your published article on ScienceDirect.

In addition, you can link to relevant data or entities through identifiers within the text of your manuscript, using the following format: Database: xxxx (e.g., TAIR: AT1G01020; CCDC: 734053; PDB: 1XFN).

**Mendeley Data**

This journal supports Mendeley Data, enabling you to deposit any research data (including raw and processed data, video, code, software, algorithms, protocols, and methods) associated with your manuscript in a free-to-use, open access repository. 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 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**

To ensure a fast publication process of the article, we kindly ask authors to provide us with their proof corrections within two days. 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 Author Services. Corresponding authors who have published their article gold open access do not receive a Share Link as their final published version of the article is available open access on ScienceDirect and can be shared through the article DOI link.

**AUTHOR INQUIRIES**
Visit the Elsevier Support Center to find the answers you need. Here you will find everything from Frequently Asked Questions to ways to get in touch. You can also check the status of your submitted article or find out when your accepted article will be published.

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