TABLE OF CONTENTS

- Description p.1
- Impact Factor p.1
- Abstracting and Indexing p.1
- Editorial Board p.2
- Guide for Authors p.4

DESCRIPTION

The Journal of Catalysis publishes original, rigorous, and scholarly contributions in the fields of heterogeneous and homogeneous catalysis including all forms of stimulations of chemical transformations (e.g., photon-, plasmon-, and electron-mediated catalysis). They are based on studies that relate catalytic function to fundamental chemical properties of surfaces and metal complexes. The contributions present novel concepts, the synthesis and kinetic investigations of inorganic solids and homogeneous complexes, spectroscopic methods for characterization of catalysts, studies of probes and reacting species interacting with the catalysts, as well as theoretical methods. The research should be of direct relevance to the science of catalytic processes and should deal with fundamental or application-driven catalysis. Published manuscripts will be of lasting value because of their significant contributions to our understanding and practice of catalysis.

IMPACT FACTOR

2022: 7.300 © Clarivate Analytics Journal Citation Reports 2023

ABSTRACTING AND INDEXING

Scopus
Biological Abstracts
Chem Inform
Chemical Abstracts
Chemical Engineering Abstracts
Current Contents - Physical, Chemical & Earth Sciences
Engineering Index
Literature Abstracts/Catalysts and Catalysis
Research Alert
Science Citation Index
INSPEC
EDITORIAL BOARD

Editor-in-Chief
J. A. Lercher, Institute for Integrated Catalysis, Richland, Washington, United States of America

Editors
M. Beller, Leibniz Institute for Catalysis, Rostock, Germany
A. Bhan, University of Minnesota Twin Cities, Minneapolis, Minnesota, United States of America
Y-H. (C.) Chin, University of Toronto Chin Research group, Toronto, Ontario, Canada
M. J. Janik, University of Pennsylvania, Department of Chemical and Biomolecular Engineering, Philadelphia, Pennsylvania, United States of America
T.M. Koper, Leiden University, Leiden, Netherlands
H. Liu, Peking University College of Chemistry and Molecular Engineering, Beijing, China
E. Nikolla, University of Michigan, Department of Chemical Engineering, Ann Arbor, Michigan, United States of America
S.T. Oyama, The University of Tokyo Graduate School of Engineering, Faculty of Engineering, Department of Chemical System Engineering, Bunkyo-Ku, Japan
J. Sauer, Humboldt University of Berlin, Berlin, Germany
K. Takanabe, The University of Tokyo, Bunkyo-Ku, Japan
R. Xu, Nanyang Technological University, Singapore, Singapore

Senior Editors
U. Olsbye, University of Oslo, Oslo, Norway

Communications and Outreach Editor
Stefanos Giannakis, Polytechnic University of Madrid, Madrid, Spain

Light-assisted Advanced Oxidation Processes (AOPs), disinfection fundamentals, contaminants of emerging concern (CECs), wastewater treatment, photobiology, environmental remediation, photochemistry, antibiotic resistance, water quality

Editorial Board
C.R. Apesteguia, Research Institute of Catalysis and Petrochemistry, Santa Fe, Argentina
A. Bandarenka, Technical University of Munich, Munich, Germany
X.H. Bao, Dalian Institute of Chemical Physics Chinese Academy of Sciences, Dalian, China
M.A. Barteau, University of Michigan, Ann Arbor, Michigan, United States of America
P. Beato, Haldor Topsøe A/S, Kongens Lyngby, Denmark
A.T. Bell, University of California Berkeley, Department of Chemical and Biomolecular Engineering, Berkeley, California, United States of America
S. Bordiga, University of Turin, Torino, Italy
C. Bricker, Honeywell UOP, Des Plaines, Illinois, United States of America
G. Centi, University of Messina Laboratory of Catalysis for Sustainable Production and Energy, Messina, Italy
C. Copéret, ETH Zurich, Zurich, Switzerland
A. Corma Canós, Chemical Technology Institute, Valencia, Spain
R. J. Davis, University of Virginia, Department of Chemical Engineering, Charlottesville, Virginia, United States of America
K. Domen, The University of Tokyo, Bunkyo-Ku, Japan
H.-J. Freund, Fritz Haber Institute of the MP Society, Berlin, Germany
C. Friend, Harvard University, Cambridge, Massachusetts, United States of America
L. Gagliardi, The University of Chicago Medicine, Chicago, Illinois, United States of America
B.C. Gates, University of California Davis, Davis, California, United States of America
E. Hensen, Eindhoven University of Technology, Eindhoven, Netherlands
I. Hermans, University of Wisconsin-Madison, Madison, Wisconsin, United States of America
W. Huber, University of Wisconsin-Madison, Madison, Wisconsin, United States of America
E. Iglesia, University of California Berkeley, Berkeley, California, United States of America
B. Kilos, Dow Chemical Company Toxicology and Environmental Research and Consulting, Midland, Michigan, United States of America
K. Körner, University of Tokyo, Bunkyo-Ku, Japan
D. Li, Dalian Institute of Chemical Physics Chinese Academy of Sciences, Dalian, China
D. Ma, Peking University, Beijing, China
C. J. A. Mota, Federal University of Rio de Janeiro, RIO DE JANEIRO, Brazil
J.K. Nørskov, Technical University of Denmark, Department of Physics, Kgs Lyngby, Denmark
U.S. Ozkan, The Ohio State University, Columbus, Ohio, United States of America
R. Palkovits, RWTH Aachen University, Aachen, Germany
P. Raybaud, IFP Energies nouvelles, Rueil Malmaison, France
D.E. Resasco, The University of Oklahoma Gallogly College of Engineering, Norman, Oklahoma, United States of America
B. Roldan Cuenya, Fritz Haber Institute of the Max Planck Society, Department of Interface Science, Berlin, Germany
S. Scott, University of California Santa Barbara, Santa Barbara, California, United States of America
P. Smirniotis, University of Cincinnati, Cincinnati, Ohio, United States of America
M. Tromp, University of Groningen Zernike Institute for Advanced Materials, Groningen, Netherlands

Early Career Board
A Abdelrahman, University of Massachusetts Amherst, Amherst, Massachusetts, United States of America
E. Borfecchia, University of Turin, Torino, Italy
K. Chan, Technical University of Denmark, Kgs Lyngby, Denmark
T. S. Choksi, Nanyang Technological University School of Chemistry Chemical Engineering and Biotechnology, Singapore, Singapore
A. Dutta Chowdhury, Wuhan University, Wuhan, China
J. Edwards, Cardiff University, Cardiff, United Kingdom
B. Goldsmith, University of Michigan, Ann Arbor, Michigan, United States of America
A. Holewinski, University of Colorado Boulder, Boulder, Colorado, United States of America
P. Majumdar, Dow Chemical Company, Freeport, Texas, United States of America
K. Manthiram, California Institute of Technology, Pasadena, California, United States of America
I. McCrum, Clarkson University, Department of Chemical and Biomolecular Engineering, Potsdam, New York, United States of America
A. J. Medford, Georgia Institute of Technology, Atlanta, Georgia, United States of America
P-A. Payard, University of Lyon, Lyon, France
P. Plessow, Karlsruhe Institute of Technology, Karlsruhe, Germany
Y. Qi, Dalian Institute of Chemical Physics Chinese Academy of Sciences, Dalian, China
M. L. Sarazen, Princeton University, Princeton, New Jersey, United States of America
T. Schwartz, The University of Maine, Department of Chemical and Biomedical Engineering, Orono, Maine, United States of America
L. Seitz, Northwestern University, Evanston, Illinois, United States of America
C. Vogt, Technion Israel Institute of Technology, Haifa, Israel
Q. Wang, Nagoya University, Nagoya, Japan
S. Yacob, ExxonMobil Research and Engineering Company Annandale, Annandale, New Jersey, United States of America
GUIDE FOR AUTHORS

Your Paper Your Way
We now differentiate between the requirements for new and revised submissions. You may choose to submit your manuscript as a single Word or PDF file to be used in the refereeing process. Only when your paper is at the revision stage, will you be requested to put your paper in to a 'correct format' for acceptance and provide the items required for the publication of your article.

To find out more, please visit the Preparation section below.

INTRODUCTION
The Journal of Catalysis publishes original, rigorous, and scholarly contributions in the fields of heterogeneous and homogeneous catalysis. These include studies that relate catalytic function to fundamental chemical processes at surfaces and in metal complexes, novel concepts in surface chemistry, the synthesis and catalytic function of novel inorganic solids and complexes, spectroscopic methods for structural characterization, and theoretical methods of direct interest and impact in the science and applications of catalysts and catalytic processes.

Journal of Catalysis publishes manuscripts of archival value because of their significant fundamental and conceptual contributions to our understanding and practice of catalytic chemistries. The journal features authoritative articles, priority communications, research notes, and letters to the Editors. Journal of Catalysis is the premier scholarly publication in the field of catalysis and, over the last decade, it has been ranked among the top ten chemistry journals in terms of impact and relevance. During this period, it has published some of the most important contributions to the science and applications of catalysis and throughout its fifty-year history, it has been an indispensable source of information for chemists and chemical engineers in both industrial and academic fields.

Journal of Catalysis does not accept preliminary publications. It prefers full articles of scholarly in-depth studies and publishes short articles only in special cases, as Priority Communications or Research Notes. Priority Communications contain unique, exciting, and novel results that provide compelling evidence for rapid publication; while results in such communications may be of a preliminary nature, experimental details must be fully documented and the results reliably reproduced. Research Notes typically contain data and concepts that resolve in a concise but rigorous manner issues raised in previous publications.

Types of Paper
Research Notes, Letters to the Editor, and Priority Communications should have a maximum of 14 double-spaced typewritten manuscript pages (including tables and figures). Accepted Research Notes will not receive publication priority over regular articles. All Research Notes should include an abstract of 60-100 words.

Letters to the Editor will be considered for priority publication under the following conditions: (a) Letters must be related to some statement made in a recently published article in this journal; (b) in cases of conflicting views on any topic, no more than one letter from each author will be accepted.

The handling editor will evaluate the suitability of an article for consideration as a Priority Communication according to the following criteria: (a) The article contains unique, exciting, and obviously novel results with a clear requirement for rapid publication; (b) articles may be of preliminary nature, but experimental details of the preparation and conditions must be fully documented so that the experiment can be repeated. Priority Communications should include an abstract of 60-100 words; Introduction, Methods, Results, and Discussion sections; a maximum of 3 figures and/or tables in total; and a References section with only the most essential references included. Manuscripts submitted for publication as Priority Communications must be accompanied by a letter explaining why the material deserves rapid publication. Manuscripts accepted as Priority Communications will be printed as quickly after acceptance as possible. Manuscripts that are judged not to warrant priority publication may be considered for publication as Research Notes.
**Perspectives** Perspectives are brief commentaries on recent developments in an established or developing topical area or on an accompanying paper. Will focus on interpretations, potential significance, and/or impact. Provide a critical personal assessment of the field of interest and its future directions, rather than a compilation and extensive summary of literature reports. Will be about 3 to 5 printed Journal pages or less than 5,000 words that may include up to 3 figures and/or tables.

A Senior Editor may authorize a somewhat longer Perspective upon request.

Usually are invited by the Senior Editors (listed below); however, authors interested in submitting a Perspective may propose a Perspective topic. Authors are advised to contact one of the Senior Editors prior to manuscript preparation and to provide a title and brief description of the Perspective. Perspectives will not have an abstract, but a stand-alone Perspective may have a graphical abstract when appropriate. Up to 5 keywords should be provided. Upon submission, please indicate the inviting Senior Editor. Submitted Perspectives will be reviewed by the Senior Editors and, if needed, by specialists in the field of interest.

**Mini-reviews** Provide a concise, focused review of a topic of current interest to the scientific community. Should include some analysis of important articles on the topic and incorporate a critical assessment of the subject. Should provide recommendations for future research and potential impact of the research. They should not be a singular, narrowly focused reviews of the author’s work only. Mini-reviews may also raise questions. Suggest new hypotheses or attempt to reconcile conflicting data that have recently been published. Mini-reviews are also defined by their length, that is 5 to 10 printed Journal pages or less than 10,000 words including up to 5 figures and/or tables. Mini-reviews must have an abstract of not more than 150 words. Not more than 5 keywords. May have a graphical abstract. A Mini-review may be initiated upon invitation by a Senior Editor. Are handled in parallel with Perspectives, except that Mini-reviews will be reviewed by a specialist in the field of interest, as well as by the Senior Editors. Upon submission, please indicate the inviting Senior Editor.

**Senior Editors of Perspectives and Mini-reviews**
J. Armor
GlobalCatalysis.com, Orefield, Pennsylvania, USA
jnapenna@gmail.com

G.L. Haller
Yale University, New Haven, Connecticut, USA
gary.haller@yale.edu

R. Prins
Eidgenssische Technische Hochschule (ETH) Zürich, Zurich, Switzerland
roel.prins@chem.ethz.ch

**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 on Ethics in publishing.

Declaration of competing interest
Corresponding authors, on behalf of all the authors of a submission, 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. All authors, including those without competing interests to declare, should provide the relevant information to the corresponding author (which, where relevant, may specify they have nothing to declare). Corresponding authors should then use this tool to create a shared statement and upload to the submission system at the Attach Files step. Please do not convert the .docx template to another file type. Author signatures are not required.

Declaration of generative AI in scientific writing
The below guidance only refers to the writing process, and not to the use of AI tools to analyse and draw insights from data as part of the research process.

Where authors use generative artificial intelligence (AI) and AI-assisted technologies in the writing process, authors should only use these technologies to improve readability and language. Applying the technology should be done with human oversight and control, and authors should carefully review and edit the result, as AI can generate authoritative-sounding output that can be incorrect, incomplete or biased. AI and AI-assisted technologies should not be listed as an author or co-author, or be cited as an author. Authorship implies responsibilities and tasks that can only be attributed to and performed by humans, as outlined in Elsevier’s AI policy for authors.

Authors should disclose in their manuscript the use of AI and AI-assisted technologies in the writing process by following the instructions below. A statement will appear in the published work. Please note that authors are ultimately responsible and accountable for the contents of the work.

Disclosure instructions
Authors must disclose the use of generative AI and AI-assisted technologies in the writing process by adding a statement at the end of their manuscript in the core manuscript file, before the References list. The statement should be placed in a new section entitled ‘Declaration of Generative AI and AI-assisted technologies in the writing process’.

Statement: During the preparation of this work the author(s) used [NAME TOOL / SERVICE] in order to [REASON]. After using this tool/service, the author(s) reviewed and edited the content as needed and take(s) full responsibility for the content of the publication.

This declaration does not apply to the use of basic tools for checking grammar, spelling, references etc. If there is nothing to disclose, there is no need to add a statement.

Plagiarism
Submission of an article implies that the work described has not been published previously (except in the form of an abstract or as part of a published lecture or academic thesis), 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, without the written consent of the copyright-holder.

Articles and any other material published in the Journal of Catalysis represent the opinions of the author(s) and should not be construed to reflect the opinions of the editor(s) or the publisher. Manuscripts that do not meet the general criteria or standards for publication in the Journal of Catalysis will be immediately returned to the authors, without detailed review. At their discretion, editors may request from the corresponding author a statement describing specific original contributions made by each co-author.

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 compliance, your article may be checked by Crossref Similarity Check and other originality or duplicate checking software.

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).

Preprint posting on SSRN
In support of Open Science, this journal offers its authors a free preprint posting service. Preprints provide early registration and dissemination of your research, which facilitates early citations and collaboration.

During submission to Editorial Manager, you can choose to release your manuscript publicly as a preprint on the preprint server SSRN once it enters peer-review with the journal. Your choice will have no effect on the editorial process or outcome with the journal. Please note that the corresponding author is expected to seek approval from all co-authors before agreeing to release the manuscript publicly on SSRN.

You will be notified via email when your preprint is posted online and a Digital Object Identifier (DOI) is assigned. Your preprint will remain globally available free to read whether the journal accepts or rejects your manuscript.

For more information about posting to SSRN, please consult the SSRN Terms of Use and FAQs.

Use of inclusive language
Inclusive language acknowledges diversity, conveys respect to all people, is sensitive to differences, and promotes equal opportunities. Content should make no assumptions about the beliefs or commitments of any reader; contain nothing which might imply that one individual is superior to another on the grounds of age, gender, race, ethnicity, culture, sexual orientation, disability or health condition; and use inclusive language throughout. Authors should ensure that writing is free from bias, stereotypes, slang, reference to dominant culture and/or cultural assumptions. We advise to seek gender neutrality by using plural nouns ("clinicians, patients/clients") as default/wherever possible to avoid using "he, she," or "he/she." We recommend avoiding the use of descriptors that refer to personal attributes such as age, gender, race, ethnicity, culture, sexual orientation, disability or health condition unless they are relevant and valid. When coding terminology is used, we recommend to avoid offensive or exclusionary terms such as "master", "slave", "blacklist" and "whitelist". We suggest using alternatives that are more appropriate and (self-) explanatory such as "primary", "secondary", "blocklist" and "allowlist". These guidelines are meant as a point of reference to help identify appropriate language but are by no means exhaustive or definitive.

Reporting sex- and gender-based analyses
Reporting guidance
For research involving or pertaining to humans, animals or eukaryotic cells, investigators should integrate sex and gender-based analyses (SGBA) into their research design according to funder/sponsor requirements and best practices within a field. Authors should address the sex and/or gender dimensions of their research in their article. In cases where they cannot, they should discuss this as a limitation to their research’s generalizability. Importantly, authors should explicitly state what definitions of sex and/or gender they are applying to enhance the precision, rigor and reproducibility of their research and to avoid ambiguity or conflation of terms and the constructs to which they refer (see Definitions section below). Authors can refer to the Sex and Gender Equity in Research (SAGER) guidelines and the SAGER guidelines checklist. These offer systematic approaches to the use and editorial review of sex and gender information in study design, data analysis, outcome reporting and research interpretation - however, please note there is no single, universally agreed-upon set of guidelines for defining sex and gender.

Definitions
Sex generally refers to a set of biological attributes that are associated with physical and physiological features (e.g., chromosomal genotype, hormonal levels, internal and external anatomy). A binary sex categorization (male/female) is usually designated at birth (“sex assigned at birth”), most often based solely on the visible external anatomy of a newborn. Gender generally refers to socially constructed roles, behaviors, and identities of women, men and gender-diverse people that occur in a historical and cultural context and may vary across societies and over time. Gender influences how people view themselves and each other, how they behave and interact and how power is distributed in society. Sex and gender are often incorrectly portrayed as binary (female/male or woman/man) and unchanging whereas these constructs actually exist along a spectrum and include additional sex categorizations and gender identities such as people who are intersex/have differences of sex development (DSD) or identify as non-binary. Moreover, the terms “sex” and “gender” can be ambiguous—thus it is important for authors to define the manner in which they are used. In addition to this definition guidance and the SAGER guidelines, the resources on this page offer further insight around sex and gender in research studies.

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 uses the Elsevier Article Transfer Service to find the best home for your manuscript. This means that if an editor feels your manuscript is more suitable for an alternative journal, you might be asked to consider transferring the manuscript to such a journal. The recommendation might be provided by a Journal Editor, a dedicated Scientific Managing Editor, a tool assisted recommendation, or a combination. If you agree, your manuscript will be transferred, though you will have the opportunity to make changes to the manuscript before the submission is complete. Please note that your manuscript will be independently reviewed 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 a '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, it is recommended to state this.

**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 Language Editing service available from Elsevier's Language Services.

**Submission**
Submission to this journal proceeds totally online. Use the following guidelines to prepare your article. Via the homepage of this journal (https://www.editorialmanager.com/yjcat/default.aspx) you will be guided stepwise through the creation and uploading of the various files. The system automatically converts source files to a single Adobe Acrobat PDF version of the article, which is used in the peer-review process. Please note that even though manuscript source files are converted to PDF at submission for the review process, these source files are needed for further processing after acceptance. All correspondence, including notification of the Editor's decision and requests for revision, takes place by e-mail and via the author's homepage, removing the need for a hard-copy paper trail.

**Suggesting reviewers**
Please submit the names and institutional e-mail addresses of several potential reviewers.

You should not suggest reviewers who are colleagues, or who have co-authored or collaborated with you during the last three years. Editors do not invite reviewers who have potential competing interests with the authors. Further, in order to provide a broad and balanced assessment of the work, and ensure scientific rigor, please suggest diverse candidate reviewers who are located in different countries/regions from the author group. Also consider other diversity attributes e.g. gender, race and ethnicity, career stage, etc. Finally, you should not include existing members of the journal's editorial team, of whom the journal are already aware.

Note: the editor decides whether or not to invite your suggested reviewers.

**Additional Information**
Manuscripts must be submitted by the senior author, who must accept responsibility on behalf of all authors for all ethical requirements. The author submitting the manuscript will be listed as the corresponding author in the published version of each accepted manuscript.

There are no submission fees or page charges. Each manuscript must be accompanied by a letter addressed to the specific editor and outlining the basic findings of the paper and its significance. If the manuscript refers to recently submitted manuscripts or papers in press (with the Journal of Catalysis or other journals), then a copy of each manuscript must be supplied so that the reviewers can judge the new manuscript in its proper context.

Revised manuscripts should be returned including revision notes. The revision notes should address the issues raised in the referee report and clearly state per page (indicate paragraph and line) which changes have been made. Additional materials may be requested at the discretion of the editor.

Authors requested to revise their submission to Journal of Catalysis will be given 4 weeks in which to submit the revised submission. Revised submissions received after 4 weeks from the time at which the revision was requested will be considered as new submissions.

We also ask that for all manuscripts with 7 or more authors to include in the cover letter a list of each author’s individual contribution to the manuscript.

PREPARATION

Queries
For questions about the editorial process (including the status of manuscripts under review) or for technical support on submissions, please visit our Support Center.

NEW SUBMISSIONS
Submission to this journal proceeds totally online and you will be guided stepwise through the creation and uploading of your files. The system automatically converts your files to a single PDF file, which is used in the peer-review process.

As part of the Your Paper Your Way service, you may choose to submit your manuscript as a single file to be used in the refereeing process. This can be a PDF file or a Word document, in any format or layout that can be used by referees to evaluate your manuscript. It should contain high enough quality figures for refereeing. If you prefer to do so, you may still provide all or some of the source files at the initial submission. Please note that individual figure files larger than 10 MB must be uploaded separately.

References
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.

Formatting requirements
There are no strict formatting requirements but all manuscripts must contain the essential elements needed to convey your manuscript, for example Abstract, Keywords, Introduction, Materials and Methods, Results, Conclusions, Artwork and Tables with Captions.
If your article includes any Videos and/or other Supplementary material, this should be included in your initial submission for peer review purposes.
Divide the article into clearly defined sections.
Use line numbering throughout your paper.

Figures and tables embedded in text
Please ensure the figures and the tables included in the single file are placed next to the relevant text in the manuscript, rather than at the bottom or the top of the file. The corresponding caption should be placed directly below the figure or table.
**Peer review**
This journal operates a single anonymized 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. Editors are not involved in decisions about papers which they have written themselves or have been written by family members or colleagues or which relate to products or services in which the editor has an interest. Any such submission is subject to all of the journal's usual procedures, with peer review handled independently of the relevant editor and their research groups. More information on types of peer review.

**REVISED SUBMISSIONS**

*Use of word processing software*
Regardless of the file format of the original submission, at revision you must provide us with an editable file of the entire article. Keep the layout of the text as simple as possible. Most formatting codes will be removed and replaced on processing the article. The electronic text should be prepared in a way very similar to that of conventional manuscripts (see also the Guide to Publishing with Elsevier). See also the section on Electronic artwork.

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

**Article structure**

*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.

**Materials and Methods**

Experimentals and methods should be sufficiently detailed to enable the experiments to be reproduced. Authors should draw attention to any particular chemical or biological hazards that may be involved in carrying out the experiments described. Any relevant safety precautions should be described; if an accepted code of practice has been followed, a reference to the relevant standards should be given.

**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. Results and Discussion may be combined and may be organized into subheadings.

**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 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 **(maximum length: 150 words)**. The abstract should state briefly the purpose of the research, the principal results and major conclusions. An abstract is often presented separate from the article, so it must be able to stand alone. For this reason, References should be avoided, but if essential, they must be cited in full, without reference to the reference list. 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**

Authors must supply a graphical abstract at the time the paper is first submitted. The abstract should summarize the contents of the paper in a concise, pictorial form designed to capture the attention of a wide readership and for compilation of databases. Authors must provide images that clearly represent the work described in the paper. The content of the graphical abstract will be typeset and should be kept within an area of 5 cm by 17 cm. Authors must supply the graphic separately as an electronic file.

**Keywords**

Immediately after the abstract, provide a maximum of 10 keywords, 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 proofreading the article, etc.). Include information on grants received.

**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, it is recommended to include the following sentence:

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Footnotes
Footnotes should be used sparingly. Number them consecutively throughout the article. Many word processors build footnotes into the text, and this feature may be used. Should this not be the case, indicate the position of footnotes in the text and present the footnotes themselves separately at the end of the article.

Artwork
Electronic artwork
General points
- Make sure you use uniform lettering and sizing of your original artwork.
- Preferred fonts: Arial (or Helvetica), Times New Roman (or Times), Symbol, Courier.
- Number the illustrations according to their sequence in the text.
- Use a logical naming convention for your artwork files.
- Indicate per figure if it is a single, 1.5 or 2-column fitting image.
- For Word submissions only, you may still provide figures and their captions, and tables within a single file at the revision stage.
- Please note that individual figure files larger than 10 MB must be provided in separate source files.

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
Regardless of the application used, 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 the font or save the text as 'graphics'.
- TIFF (or JPG): Color or grayscale photographs (halftones): always use a minimum of 300 dpi.
- TIFF (or JPG): Bitmapmed line drawings: use a minimum of 1000 dpi.
- TIFF (or JPG): Combinations bitmapped line/half-tone (color or grayscale): a minimum of 500 dpi is required.

Please do not:
- Supply files that are optimized for screen use (e.g., 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, EPS or MS Office files) and with the correct resolution. If, together with your accepted article, you submit usable colour figures then Elsevier will ensure, at no additional charge, that these figures will appear in colour on the Web (e.g., ScienceDirect and other sites) regardless of whether or not these illustrations are reproduced in colour in the printed version. For colour reproduction in print, you will receive information regarding the costs from Elsevier after receipt of your accepted article. Please indicate your preference for colour in print or on the Web only. For further information on the preparation of electronic artwork, please see https://www.elsevier.com/artworkinstructions.

Please note: Because of technical complications which can arise by converting colour figures to "grey scale" (for the printed version should you not opt for colour in print) please submit in addition usable black and white versions of all the colour illustrations. Color figures should not be submitted unless the Authors are willing to assume all costs associated with color reproduction. If color reproduction is essential and the authors intend to argue for a waiver of charges, the Editor should be consulted upon manuscript submission.
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
Citation in Text; Proof of 'in press' required
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 and a copy of the title page of the relevant article must be submitted.

Authors must supply a full-text copy of all unpublished references (including "Personal Communications" and papers "in press"). These references will be included in your submission and will be verified by the reviewers of your manuscript. Any submission that does not comply with this requirement will be rejected by the Editors.

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.


Preprint references
Where a preprint has subsequently become available as a peer-reviewed publication, the formal publication should be used as the reference. If there are preprints that are central to your work or that cover crucial developments in the topic, but are not yet formally published, these may be referenced. Preprints should be clearly marked as such, for example by including the word preprint, or the name of the preprint server, as part of the reference. The preprint DOI should also be provided.

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.
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

References should be individually numbered in the order in which they are cited in the text (including tables assuming they will be located where they are first mentioned in the text), and listed in numerical sequence on separate sheets at the end of the paper, typed in double spacing. The numbers (no alphabetical characters) should appear in the text at the appropriate places in square brackets [ ]. In the reference list, periodicals [1], books [2], multiauthor books with editors [3], proceedings [4], and patents [5] should be cited in accordance with the following examples:


Authors' and editors' names should be given as initials followed by surname. The names of all authors (and/or all editors) should be listed in the reference list; "et al." should not be used here. Abbreviations for the titles of journals should follow the system used by Chemical Abstracts. Each reference should be complete in itself; therefore ibid. should not be used in the reference list.

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 requires 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, which may also include 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. When sharing data in one of these ways, you are expected 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).

**Research Elements**
This journal enables you to publish research objects related to your original research – such as data, methods, protocols, software and hardware – as an additional paper in a Research Elements journal.

Research Elements is a suite of peer-reviewed, open access journals which make your research objects findable, accessible and reusable. Articles place research objects into context by providing detailed descriptions of objects and their application, and linking to the associated original research articles. Research Elements articles can be prepared by you, or by one of your collaborators.

During submission, you will be alerted to the opportunity to prepare and submit a manuscript to one of the Research Elements journals.

More information can be found on the [Research Elements page](#).

**Data statement**
To foster transparency, we require you to state the availability of your data in your submission if your data is unavailable to access or unsuitable to post. This may also be a requirement of your funding body or institution. You will have the opportunity to provide a data statement during the submission process. The statement will appear with your published article on ScienceDirect. For more information, visit the [Data Statement page](#).

**Additional Information**
When preparing the manuscript, use double spacing and wide (3 cm) margins. (Avoid full justification; i.e., do not use a constant right-hand margin.) Ensure that each new paragraph is clearly indicated. Present tables and figure legends on separate pages at the end of the manuscript. If possible, consult a recent issue of the journal to become familiar with layout and conventions. Number all pages consecutively.

Chemical reaction data
For heterogeneous catalysis, presentation should include reaction rates normalized by catalyst surface area, surface area of the active phase, or number of active surface atoms or catalytic sites, as appropriate. Typical rate units are mol s$^{-1}$ m$^{-2}$ or, in the case of surface atom normalization to produce turnover frequencies, s$^{-1}$. For homogeneous catalysis, rates should typically be reported as turnover frequencies. Comparisons of selectivities should be made at similar conversions. Catalytic measurements need to be carried out under kinetically limited conditions. Confirming tests need to be carried out and reported, especially for all reactions occurring in the liquid phase.

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. 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