DESCRIPTION

Announcement: Starting with the publications of 2021 Ultrasonics Sonochemistry will become an open access journal. Authors who publish in Ultrasonics Sonochemistry are now able to make their work immediately, permanently, and freely accessible.

Ultrasonics Sonochemistry continues with the same aims and scope, editorial team, submission system and rigorous peer review.

Ultrasonics Sonochemistry authors will pay an article publishing charge (APC), have a choice of license options, and retain copyright to their published work. The APC will be requested after peer review and acceptance. The APC payment will be required for all accepted articles submitted after the 31st of December 2020. The APC for Ultrasonics Sonochemistry will be USD 2300 (excluding taxes). For submissions between 1 January 2021 and 31 December 2021 there is a 50% introduction discount, resulting in an Article Publishing Charge of USD 1,150 (excluding taxes).

Please note: Authors who have submitted their paper on or before the 31st of December 2020, will have their accepted article published in Ultrasonics Sonochemistry at no charge. Authors submitting their paper after this date will be requested to pay the APC. For more details visit our FAQs page.

Ultrasonics Sonochemistry is a leading international journal devoted to publishing excellent quality research articles primarily on chemical reactions and reactors induced by ultrasonic waves, namely sonochemistry. In addition to focusing on chemical reactions, Ultrasonics Sonochemistry also values contributions related to cavitation (acoustic or hydrodynamic) induced events and processing such as sonoluminescence, and chemical/physical/biological transformation of materials.

Ultrasonics Sonochemistry publishes excellent quality papers in a number of areas involving ultrasonics and sonochemistry. Since its establishment in 1994, the journal’s ranking has been consistently high and currently the top ranked journal in the "Acoustics" category. Papers published in Ultrasonics Sonochemistry are highly relevant to academics and the industry sector.

Ultrasonics Sonochemistry considers high quality manuscripts for publication under the following categories: Full length research articles, Reviews and Short Communications in the research topics/areas listed below. Manuscripts reporting routine/incremental work will not be considered for publication under any category / topic.
Acoustic cavitation: Theory, bubble dynamics and fundamental work pertaining to: single and/or multiple bubbles dynamics in a fluctuating force field of pressure, light and magnetism; effect of physico-chemical properties of the gases/vapour components and also fluid properties such as surface tension, viscosity, rheology etc.; basic force and energy balance equation and models for single and multibubble systems; various analytical and numerical solutions to the equations derived in various force fields under a variety of boundary and initial conditions; algorithms for the different solution schemes for single and multiple bubble dynamics and/or their interactions; establishing links between the fundamental dynamics with microscopic/macroscopic and bulk effects, including symmetric and asymmetric bubble oscillations; cavitation intensity; spatio-temporal distribution.

Sonochemistry: Chemical and physical operating parameters influencing cavitation threshold, activity, intensity and associated effects (experimental and theoretical); chemical and physical dosimetry of cavitation activity; frequency effect on sonochemistry; single bubble sonochemistry; sonochemistry in non-cavitating conditions; reactor and probe design; scale-up.

Sonoluminescence: Single bubble sonoluminescence (SBSL); multibubble sonoluminescence (MBSL); sonochemiluminescence (SCL); cavitation bubble structures; sonophoto-luminescence (SPL); sonoluminescence quenching; effect of frequency and acoustic power on sonoluminescence; characterisation of ultrasonic reactors using sonoluminescence and/or sonochemiluminescence.

Synthesis of materials including inorganic and organic materials: Ultrasonic/sonochemical/ultrasound-assisted synthesis of organic materials such as organic molecules, polymer materials, and supermolecular compounds; ultrasonic/sonochemical/ultrasound-assisted synthesis of inorganic materials, such as, inorganic molecules, metals, metal oxides, and ceramics and ceramic micromaterials/nanomaterials; Ultrasonic activation of synthetic reactions.

Sonoprocessing: Ultrasonic-assisted extraction of oil, bioactive compounds, natural products, antioxidant compounds etc.; Soil washing for removing soil contaminates with ultrasounds; ultrasonic/acoustic emulsification of two or more immiscible liquid phases; treatment of contaminated soil/surfaces.

Food processing: Processing of food and/or dairy systems (e.g., dairy/whey proteins; starch, polyphenols, etc.) using ultrasound; ultrasonic modification of functional properties of food/dairy systems; ultrasonic activation/deactivation of enzymes in food/dairy systems; ultrasonic deactivation of pathogens in food/dairy systems; ultrasonic extraction of functional (e.g., polyphenols, antioxidants) ingredients; large scale reactors for food processing applications; ultrasonic preparation of food emulsions.

Environmental remediation: Destruction/removal of pollutants or contaminants from soil, ground or water; influence of physical and chemical operating parameters on kinetics; elucidation of chemical pathways; Advanced Oxidation Processes (AOPs); sono-Fenton and related topics; sonocatalysis and related topics; scale-up processes.

Sonocrystallisation: Work pertaining to: effect of acoustic irradiations and turbulent velocity and pressure fluctuations on the nucleation, growth and the particle size distribution (PSD); population balance models and probabilities of particle breakage and/or agglomeration and nucleation; system properties and the effect of the same on sonication, it's propagation and alteration and hence the crystallization phenomenon; energetic (energy balance) of crystallization and the role of acoustics on the same.

Sonoelectrochemistry: Electrosynthesis of useful compounds and materials in an ultrasonic field; ultrasonic activation of electrochemical reactions; ultrasonic enhancement of detection sensitivity in electroanalysis. Detailed experimental procedure as well as mechanisms should be critically discussed. Manuscripts reporting such combined technologies without such details or constructive discussion will not be considered for publication.
Hybrid techniques: Ultrasonic coupling with other technologies (other than sonoelectrochemistry), microwave, photochemistry (sonophotocatalysis), tribochemistry, mechano-chemistry, etc.), dual and multifrequency operation at laboratory or large scale leading to enhanced efficiency. Detailed experimental procedure as well as mechanisms should be critically discussed. Manuscripts reporting such combined technologies without such details or constructive discussion will be not considered for publication.

Ultrasound in biomedical applications: Ultrasonic synthesis of microspheres/nanospheres for drug/nutrient delivery; ultrasonic/sonochemical synthesis of protein microspheres and core-shell architectures; ultrasonic/sonochemical synthesis of biomaterials. Manuscripts dealing with therapeutic/diagnostic effects of ultrasound may not be suitable for this journal.

Hydrodynamic cavitation: Work pertaining to: cavitation in hydraulic and high fluid velocity rotary and linear velocity systems; fundamentals of cavity/bubble nucleation, growth and collapse (cavitation), under rotary machines and high speed constricted flows; experimental validation (cause and effects) of the cavitation phenomena and harnessing of the energy release; scale -up studies and industrial cavitating systems.

Keywords: sonochemistry, ultrasonics, cavitation, sonication, sonoluminescence, sonoprocessing, food processing, sonocrystallisation, environmental remediation, sonoelectrochemistry

AUDIENCE

All engineers, chemists and scientists working in both industry and academia and dealing with the various aspects of sonochemistry in catalysis, synthesis, processing, mixing, separations, etc.

IMPACT FACTOR

2019: 6.513 © Clarivate Analytics Journal Citation Reports 2020

ABSTRACTING AND INDEXING

Embase
AATA Online: Abstracts of International Conservation Literature
Directory of Open Access Journals (DOAJ)
PubMed Central
PubMed/Medline
Current Contents - Physical, Chemical & Earth Sciences
EI Compendex Plus
Scopus
ISI Science Citation Index
INSPEC

EDITORIAL BOARD

Editor-in-Chief
Muthupandian Ashokkumar, The University of Melbourne, Melbourne, Victoria, Australia

Executive Editors
Daria-Camilla Boffito, Montreal Polytechnic, Montreal, Quebec, Canada
Process Intensification, Sonocatalysis, Ultrasound-assisted synthesis, Heterogeneous Catalysis, Biomass Conversion
Erico M. M. Flores, Federal University of Santa Maria, Santa Maria, Brazil
Water treatment, Crude oil applications of ultrasound, Biomass production, Application of ultrasound for analytical chemistry, Ultrasound assisted food processing
Jean-Marc Leveque, Savoie Mont-Blanc University Faculty of Sciences and Mountain Training, Le Bourget du Lac, France

Sivakumar Manickam, University of Nottingham - Malaysia Campus Research and Knowledge Exchange Hub, Semenyih, Malaysia

Cavitation, Ultrasound, Hydrodynamic, Nano, Material, Emulsion

Bruno G. Pollet, Norwegian University of Science and Technology, Trondheim, Norway

Sono электрохимия, Hydrogen and Fuel Cells, Water Disinfection, Electrochemical Engineering, Energy Nanomaterials

Honorary Editor

Timothy Mason, Coventry University Sonochemistry Centre, Coventry, United Kingdom

Editorial Board Members

Mahito Atobe, Yokohama National University, Yokohama, Japan
Claudia L. Bianchi, University of Milan, Milan, Italy
Sonochemical degradation, Wastewater treatment, Photocatalysis, Nanoparticles, Doped catalysts

Francesca Cavalleri, The University of Melbourne Asialink, Parkville, Australia
Biomaterials, Bipolymers, Nanochemistry and Supramolecular chemistry, Ultrasound responsive biomaterials

Farid Chemat, Avignon University, Avignon, France
Food processing, Green Extraction, Alternative solvents, Innovative techniques, Combined processes

Pedro Cintas, University of Extremadura Faculty of Science Department of Organic and Inorganic Chemistry, Badajoz, Spain
Sonochemistry, Mechanochemistry, Green methods, Chirality, Organic synthesis

Giancarlo Cravotto, University of Turin, Turin, Italy
Green Chemistry, Process Intensification, Organic Synthesis, Enabling Technologies in Food Processing, Extraction Processes

Mohammad H. Entezari, Ferdowsi University of Mashhad, Mashhad, Iran, Islamic Republic of
Sonosynthesis of nanoparticles, Nanophotocatalysts, Nanocomposite coatings, Solar mineralization, Water treatment

Dmitry G. Eskin, Brunel University Brunel Centre for Advanced Solidification Technology, Uxbridge, United Kingdom
Ultrasonic processing of liquids, Ultrasonic exfoliation, Ultrasonic emulsification, Solidification processing, Light alloys, Structure refinement, Grain refinement, Metal matrix composites

David Fernandez Rivas, University of Twente Faculty of Science and Technology, Enschede, Netherlands
cavitation, microfluidics, process-intensification, cleaning

Aharon Gedanken, Bar-Ilan University, Ramat Gan, Israel
Sonochemical coatings, nanoparticles, carbon dots, antibacterial and antibiotic, conversion of biomass to biofuels

Parag Gogate, Institute of Chemical Technology, Mumbai, India
Process Intensification, wastewater treatment, ultrasound, intensified processing of biomass to value added chemicals, biofuels, sonocrystallization, enzymatic reactions, Green chemistry, natural product extraction

Jean-Yves Hihn, Franche-Comte University, Besançon, France
Sonochemistry, Sono electrochemistry, Sonoreactors, Surface treatment, Coatings

Ali Reza Khataee, Tabriz University of Medical Sciences, Tabriz, Iran, Islamic Republic of
Advanced oxidation processes, Nanostructured catalysts, Ultrasound-assisted processes, Sonochemical synthesis of nanostructures, Photocatalytic processes.

Judy Lee, University of Surrey, Guildford, United Kingdom
Sonoluminescence, sonocrystallisation, material synthesis, water processing and wastewater treatment, membrane filtration

Yasauki Maeda, Osaka Prefecture University College of Engineering, Osaka, Japan

Mahmoud Meribout, Khalifa University of Science and Technology, Abu Dhabi, United Arab Emirates
Ultras nics-based electronics Systems, Ultras nics-based Enhanced Oil recovery and Hydrocarbon heating, medical ultrasound, piezoelectric materials, ultrasonic-based imaging systems

Robert Mettin, University of Göttingen, Göttingen, Germany
Ultrasonic, Cavitation, Bubble dynamics, Sonoluminescence, Surface treatment

Sergey Nikitenko, Institute of Separate Chemistry Marcoule, Bagnols sur Ceze, France
Sonochemistry, ultrasound, nanomaterials, inorganic chemistry, radiochemistry, catalysis

Rachel Pflieger, Institute of Separate Chemistry Marcoule, Bagnols sur Ceze, France
sonoluminescence, sonochemistry, emission spectroscopy, plasma

Gareth Price, University of Bath, Bath, United Kingdom
Sonochemistry, Sonoluminescence, Functional polymers, Nanoparticles, Composite materials
Younggyu Son, Kumoh National Institute of Technology, Gumi, Korea, Republic of
Advanced oxidation processes (AOPs), Ultrasonic soil washing processes, Sonoreactor design, Scale-up; Sonochemical oxidation

Yang Tao, Nanjing Agricultural University, Nanjing, China
Food physical processing, extraction and purification, drying, process simulation and optimization, heat and mass transfer.

Brijesh K. Tiwari, Teagasc Food Research Centre Ashtown, Dublin, Ireland
Ultrasound assisted extraction, Novel nonthermal technologies, Food processing and preservation, Clean and green extraction technologies, Food by-product valorisation

Mar Villamiel, Institute of Food Science Research, Madrid, Spain
Food; Carbohydrates; Enzymes; Processing; Functionality

Linda K. Weavers, OHIO STATE UNIVERSITY, Columbus, Ohio, United States
Environmental sonochemistry, Advanced oxidation processes, Contaminant degradation, Ultrasonic membrane defouling, Sediment remediation

Hesheng Xia, Sichuan University, Chengdu, Sichuan, China
Sonochemistry, Polymerization, Polymer nanocomposite, Graphene, Nanotube

Kyuichi Yasui, National Institute of Advanced Industrial Science and Technology Chubu Center, Nagoya, Japan
Sonoluminescence, bubble dynamics, numerical simulation, acoustic cavitation

Jun-Jie Zhu, Nanjing University, Nanjing, China
Electrochemistry, Ultrasound-assisted materials synthesis, Nanoparticles, Drug delivery
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.

1. Full length research articles: Authors are advised that for the manuscripts submitted for this category, the total number of figures and tables presented in the submitted manuscript should not exceed 15. Manuscripts will be automatically rejected if the total number of figures + tables exceeds 15, unless further justification for exceeding this limit is provided in the cover letter. Reviews 3. Short Communications: Manuscripts submitted for this category should justify the novelty and urgency of the work and the length of the manuscript (communication) should not exceed more than 4 printed pages and may include up to 3 figures.

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. Authors have to make sure to avoid extensive self-citation.

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 competing 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 competing interest statement using this template and upload to the submission system at the Attach/Upload Files
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. 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. These guidelines are meant as a point of reference to help identify appropriate language but are by no means exhaustive or definitive.

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.

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

**Refereeing**
An editor will evaluate each submission. Those rejected at this stage are normally declined for reasons such as: being insufficiently original, having serious scientific flaws, having poor grammar or poor use of English, or being outside the aims and scope of the journal. In addition, due to space limitations, not all worthwhile papers can necessarily be accepted. Editors attempt to shape the content of the journal to provide an appropriate selection of high-quality and interesting papers for the readership. Papers that pass this initial screening are normally sent out for review to one or more anonymous referees. Suggestions for referees from the author are welcomed. However, these recommendations may or may not be used at the discretion of the editor.

**PREPARATION**

**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.

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.

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

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

Article structure
Ultrasonics Sonochemistry considers high quality manuscripts for publication under the following categories

1. Full length research articles

2. Reviews

3. Short Communications: Manuscripts submitted for this category should justify the novelty and urgency of the work. The length of the manuscript should not exceed more than 4 printed pages and may include up to 3 figures.

4. Opinion papers: Manuscripts submitted to this category may initiate further discussion on a hypothesis proposed by the authors of the current manuscript or a hypothesis/concept published in previous papers relevant to the topics covered in Ultrasonics Sonochemistry. Authors are strongly recommended to refer to previously published Opinion papers for guidance. The length of the manuscript should not exceed more than 6 printed pages and may include up to 5 figures/tables and a limited number of references, not exceeding 30. The suggested format of the Opinion Paper is: Abstract, Introduction, Main Text (with a flexible section titles), Conclusions and References.
Please adhere to the following order of presentation: Article title, Author(s), Affiliation(s), Abstract, keywords, Main text, Acknowledgements, Appendices, References, Figure captions, Tables.

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

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.
Nomenclature and units
Follow internationally accepted rules and conventions: use the international system of units (SI). If other quantities are mentioned, give their equivalent in SI. You are urged to consult IUPAC: Nomenclature of Organic Chemistry for further information.

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
• Make sure you use uniform lettering and sizing of your original artwork.
• Embed the used fonts if the application provides that option.
• Aim to use the following fonts in your illustrations: Arial, Courier, Times New Roman, Symbol, or use fonts that look similar.
• Number the illustrations according to their sequence in the text.
• Use a logical naming convention for your artwork files.
• Provide captions to illustrations separately.
• Size the illustrations close to the desired dimensions of the published version.
• Submit each illustration as a separate file.
• Ensure that color images are accessible to all, including those with impaired color vision.

A detailed guide on electronic artwork is available. You are urged to visit this site; some excerpts from the detailed information are given here.

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

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

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. Supply captions separately, not attached to the figure. A caption should comprise a brief title (not on the figure itself) and a description of the illustration. Keep text in the illustrations themselves to a minimum but explain all symbols and abbreviations used.

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

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

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

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

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

Reference management software
Most Elsevier journals have their reference template available in many of the most popular reference management software products. These include all products that support Citation Style Language styles, such as Mendeley. 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/ultrasonics-sonochemistry
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 in Brief**
You have the option of converting any or all parts of your supplementary or additional raw data into a data article published in Data in Brief. A data article is a new kind of article that ensures that your data are actively reviewed, curated, formatted, indexed, given a DOI and made publicly available to all upon publication (watch this video describing the benefits of publishing your data in Data in Brief). You are encouraged to submit your data article for Data in Brief as an additional item directly alongside the revised version of your manuscript. If your research article is accepted, your data article will automatically be transferred over to Data in Brief where it will be editorially reviewed, published open access and linked to your research article on ScienceDirect. Please note an open access fee is payable for publication in Data in Brief. Full details can be found on the Data in Brief website. Please use this template to write your Data in Brief data article.

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

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

Online proof correction
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