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Issues related to Scientific Publication – Presentation, Ethics and Impact

Srikanta Patnaik Professor

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International Journal of Computational Vision and Robotics
Springer Book Series on Modeling and Optimization in Science and Technology [MOST]

Scientific Knowledge

The object of research is to extend human knowledge beyond what is already known.

But an individual's knowledge enters the domain of science only after it is presented to others in such a fashion that they can independently judge its validity

(NAP, "On Being a Scientist" 1995)

Sharing Scientific Knowledge

"Science is a shared knowledge based on a common understanding of some aspect of the physical or social world"

(NAP, "On Being a Scientist" 1995)

Presentations

- Social conventions play an important role in establishing the reliability of scientific knowledge

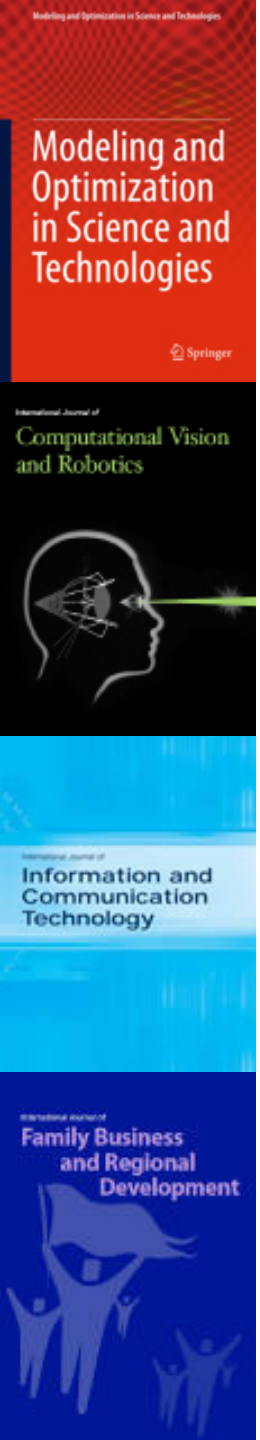
Publications in peer reviewed journals

- Research results are privileged until they are published

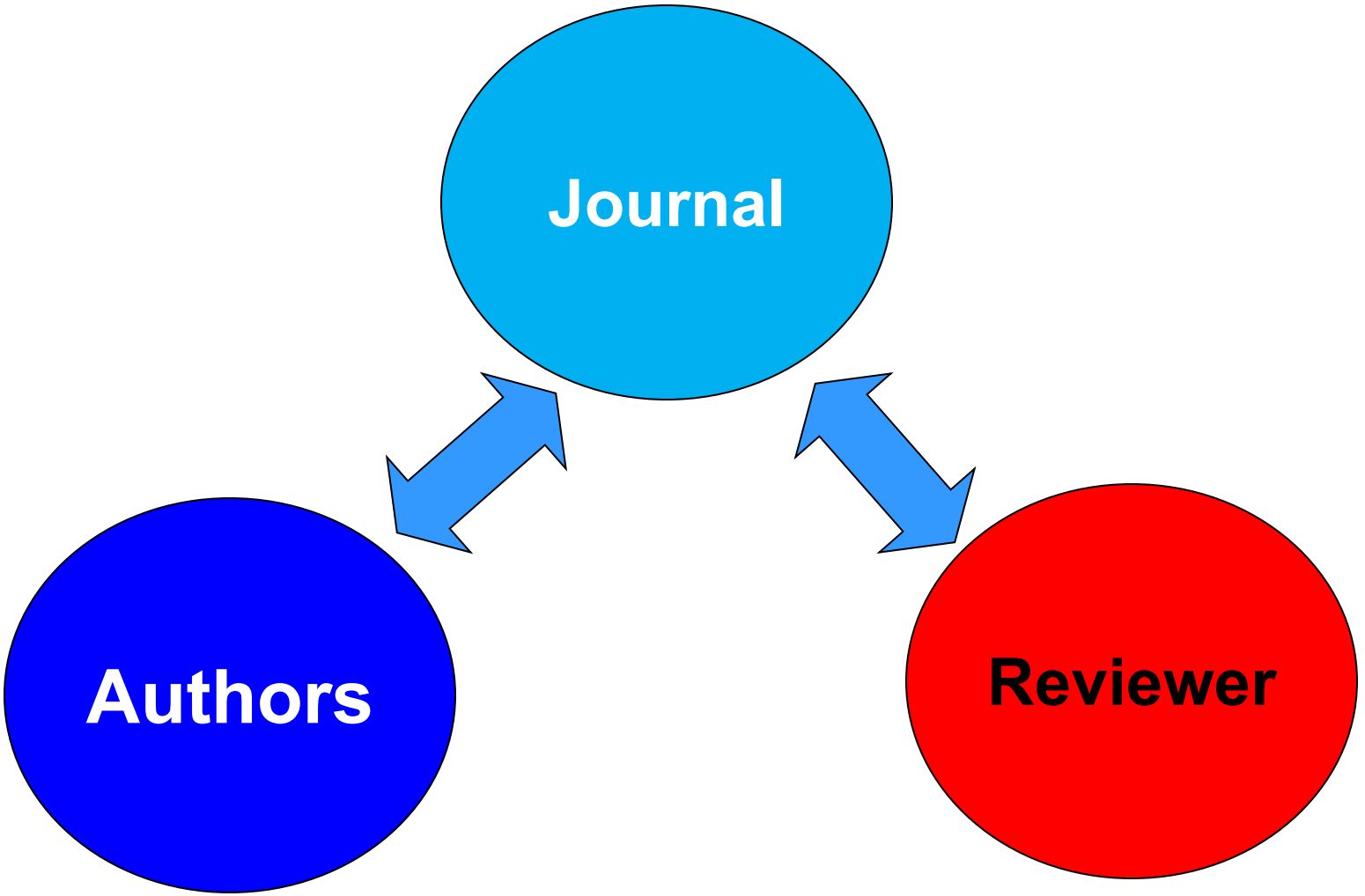
Thesis

Why Publish?

- "**A paper is an organized description of hypotheses, data and conclusions, intended to instruct the reader**. If your research does not generate papers, it might just as well not have been done" (G. Whitesides, Adv. Mater., 2004, 16, 1375)
- **"if it wasn't published, it wasn't done" -** in E.H. Miller 1993



Scientific Publication is a Team Effort



www.inderscience.com/ijict www.inderscience.com/ijcvr

Author Responsibilities
– Preparation and Submission of Manuscripts:

Follow General Rules:

- Ensure work is new and original research
- All Authors listed on Manuscript (MS) are aware of submission and agree with content and support submission
- Agree that the MS can be examined by anonymous reviewers.
- Provide copies of related work submitted or published elsewhere
- Obtain copyright permission if figures/tables need to be reproduced
- Include proper affiliation

What is publishable….

Journals like to publish papers that are going to be widely read and useful to the readers

- Papers that report **"original and significant" findings** that are likely to be of interest to a broad spectrum of its readers
- Papers that are **well organized and well written**, with clear statements regarding how the findings relate to and advance the understanding/ development of the subject
- Papers that are **concise and yet complete** in their presentation of the findings

What is not acceptable…

- Papers that are **routine extensions of previous reports** and that do not appreciably advance fundamental understanding or knowledge in the area
- **Incremental / fragmentary reports** of research results
- **Verbose, poorly organized, papers** cluttered with unnecessary or poor quality illustrations
- **Violations of ethical guidelines**, including plagiarism of any type or degree (of others or of oneself)

Useful Definitions: Scientific Misconduct

"Scientific misconduct means fabrication, falsification, plagiarism, or other practices that seriously deviate from those that are commonly accepted within the scientific community for proposing, conducting or reporting research"

Managing Allegations of Scientific Misconduct: A Guidance Document for Editors, January 2000, Office of Research Integrity, Office of Public Health and Science, U.S. Dept. of Health and Human Services http://ori.dhhs.gov

Useful Definitions: Plagiarism and Self-Plagiarism

- Plagiarism: using the ideas or words of another person without giving appropriate credit (Nat. Acad. Press document)
- Self-Plagiarism: The verbatim copying or reuse of one's own research (IEEE Policy statement)

Note: Both types of plagiarism are considered to be unacceptable practice by most scientific publications

Other Types of Ethical Violations

- Duplicate publication/submission of research findings; failure to inform the editor of related papers that the author has under consideration or “in press”
- Unrevealed conflicts of interest that could affect the interpretation of the findings
- Misrepresentation of research findings - use of selective or fraudulent data to support a hypothesis or claim

Sooner or later
……. ethical violations get exposed

Some recent examples

A recent retraction …..

Ethical Responsibilities for Authors in *The Journal of Physical Chemistry*

I recently took the step of retracting from the scientific record a letter published in *The Journal of Physical Chemistry C*, as it is emblematic of a type of author misconduct that we as research professionals must seek to avoid if we are to uphold the integrity of the scientific literature.

The letter in question was a publication by Fang et al., *J. Phys. Chem. C* **2007**, *111*, 1065-1070. After publication of the letter, it was brought to our attention that the paper by Fang et al., as submitted and subsequently published by the journal after peer review, included a number of figures that duplicated those contained within previously published papers by other authors …….. I judged such misconduct by the authors to constitute a serious instance of plagiarism.

George Schatz
Editor in Chief
J. Phys. Chem. A/B/C

Original Paper
Oriented Assembly of Fe3O4 Nanoparticles into Monodisperse Hollow Single-Crystal Microspheres
Yu et al, *J. Phys. Chem. B* 2006, *110,* 21667-21671 (Figure 3)

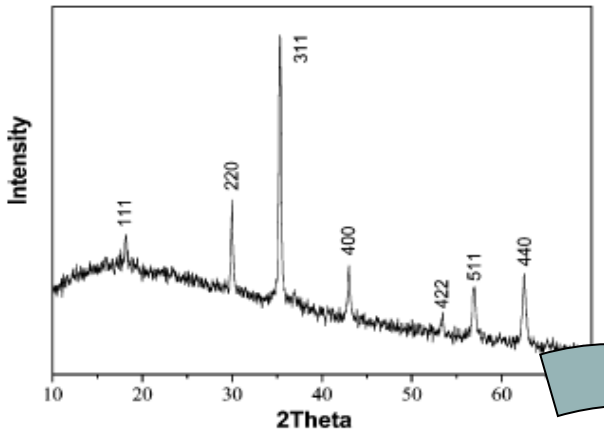
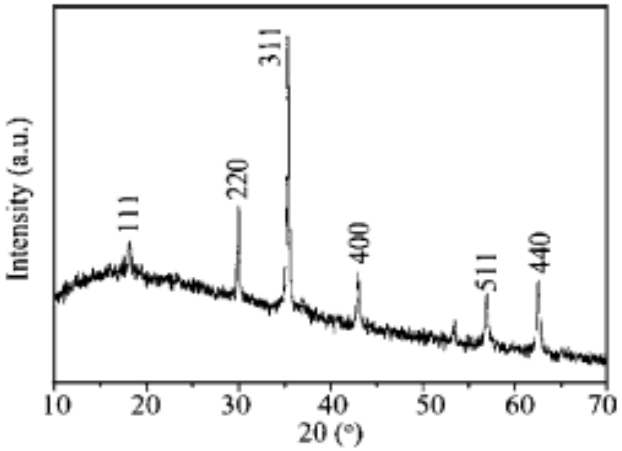
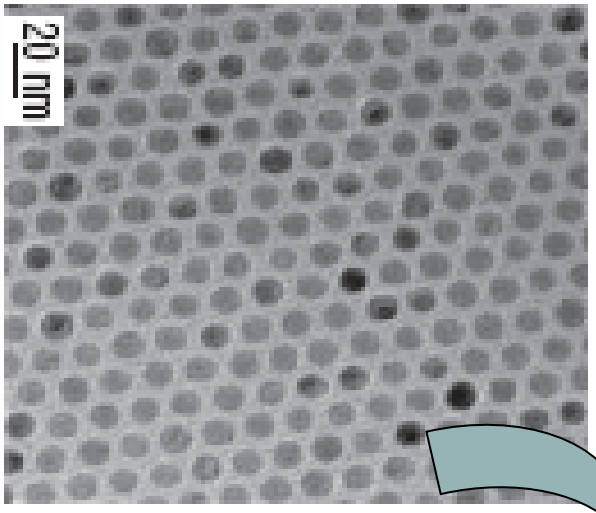


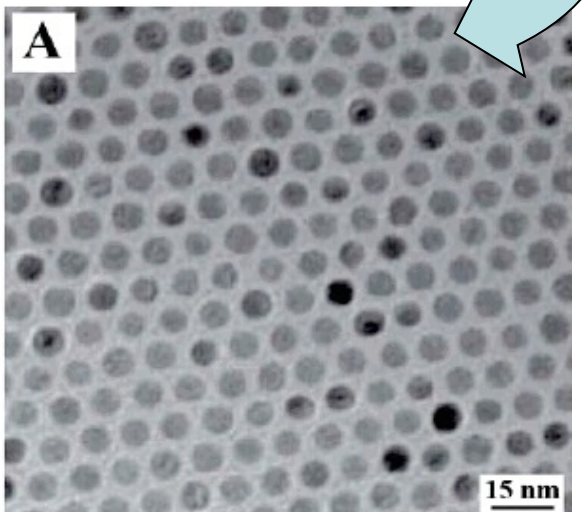
Figure 3. A typical XRD pattern of Fe_3O_4 hollow microspheres.



Plagiarized paper:
Fabrication of Monodisperse Magnetic Fe3O4-SiO2 Nanocomposites with Core-Shell Structures Hua Fang,* Chun-yang Ma, Tai-li Wan, Mei Zhang, and Wei-hai Shi J. Phys. Chem C **2007,** *111,* 1065-1070

Original paper:
Ultra-large-scale syntheses of monodisperse nanocrystals, Park et al. Nature Materials, 2004, 3, 891 (Figure 3C)





Science 27 JULY 2007 VOL 317 SCIENCE www.sciencemag.org

Retraction

WE WISH TO RETRACT OUR REPORT "*CDX2* GENE EXPRESSION AND TROPHECTODERM LINEAGE specification in mouse embryos" (*1*). Allegations of research misconduct were received by the University of Missouri-Columbia (MU) Provost, and an investigation found that the first author (K.D.) engaged in research misconduct by intentionally falsifying and fabricating digital images in the preparation of Figs. 4I; 4N; 4S; 2G; 3, J to L; S2, V to X; and S6, I to K accompanying the *Science* article. In addition, the original raw image files for the majority of the figures in the paper have not been located (the exceptions being the confocal scanning images in Figs. S1, S3, S4, S5, and S6), raising the possibility that the data they represent may also be suspect. We have decided to withdraw the article in its entirety in view of the fact that the paper was founded at least in part on falsified or fabricated images.

The corresponding author (R.M.R.) takes responsibility for placing excessive trust in his coworker and for not assuring that a complete set of raw data existed at the time the questions first arose about the paper. We deeply regret any scientific misconceptions that have resulted from the publication of this article.

The first author resigned from MU shortly after the allegations of research misconduct were received and could not be found to sign the retraction.

R. MICHAEL ROBERTS,[1] M. SIVAGURU,[2] H. Y. YONG[3]

[1]Division of Animal Sciences, University of Missouri, Columbia, MO 65211, USA. [2]Institute for Genomic Biology, University of Illinois, Urbana-Champaign, IL 61801, USA. [3]BK21 Dental Research Institute, College of Dentistry, Seoul National University, 28 Yongun-dong, Chongno-gu, Seoul 110-749, Korea.

Reference

1. K. Deb, M. Sivaguru, H. Y. Yong, R. M. Roberts, *Science* **311**, 992 (2006).

Citations
-Read the work before you cite
-Important to cite the work correctly and completely

Paper trail reveals references go unread by citing authors

Philip Ball

Many of the references cited in scientific papers have not been read by the authors citing them, according to an analysis of how errors in citations propagate through the literature.

It isn't easy to establish directly — and truthfully — whether citations have been reference being copied from someone else's citation list. The most common misprint appeared 78 times.

Based on the number of distinct misprints, the two researchers estimate that only 22–23% of citations followed from a reading of the original paper. And they postulate that this is typical of the scientific literature as a whole.

NATURE|VOL 420 | 12 DECEMBER 20002 p 594

The Chronicle of Higher Education, August 11, 2006
Also in Wall Street Journal –today's issue
(40% students use materials downloaded from internet!)

The Plagiarism Hunter

When one graduate student went to the library, he found copycats — lots of them

By PAULA WASLEY, Athens, Ohio

In Ohio University's Library, Thomas A. Matrka takes just 15 minutes to hit pay dirt. Scattered before him on a table are 16 chemical-engineering master's theses on "multiphase flow." Identical diagrams in two theses from 1997 and 1998 strike him as suspicious. Turning a few more pages, he confirms what he suspected……..

Most of the plagiarism found at Ohio occurred in introductory chapters describing research methods and reviewing the previous literature in the field, for which there is little expectation of originality. And all but a few cases involved international students who, he says, **whether through ignorance, laziness, or cultural misunderstanding, may have either not known correct citation practices or, struggling to write** in a foreign language, been tempted to borrow another student's words.

How Journals Detect and Handle Problem Papers

- Information received from reviewers or other editors
- Literature search for related papers by the author

- Withdrawal of a paper from publication
- Banning authors from publication in the journal for 3-5 years and informing the co-authors and editors of related journals of our action
- For less serious cases, placing the author on a “watch list” for careful examination of their submissions prior to requesting reviews

RETRACTED: Fluorescence lifetime increase by introduction of F^- ions in ytterbium-doped TeO_2-based glasses

Journal of Alloys and Compounds, Volume 393, Issues 1-2, 3 May 2005, Pages 279-282

Guonian Wang, Shixun Dai, Junjie Zhang, Shiqing Xu and Zhonghong Jiang

RETRACTED: Effect of F− ions on spectroscopic properties of Yb^{3+}-doped zinc–tellurite glasses •

Journal of Physics and Chemistry of Solids, Volume 66, Issue 6, June 2005, Pages 1107-1111

Guonian Wang, Junjie Zhang, Shixun Dai, Jianhu Yang and Zhonghong Jiang

A Call for Cooperation

"We would like to encourage the leaders of academic research groups to inform their students and research associates about the ethical responsibilities of authors of scientific publications and to insure that, when they are given the responsibility for submitting a paper, they are fully aware of the potential consequences, to themselves and to their co-authors, of violations in these ethical guidelines."

Interrante & Reichmanis,C&EN, Vol 83(6), p. 4 (2005)

Summary

Scientific Ethics is an integral part of graduate research.

STATEMENTS, FIGURES AND TABLES
Reproduced in a Report, Presentation and/or Paper require proper citation.

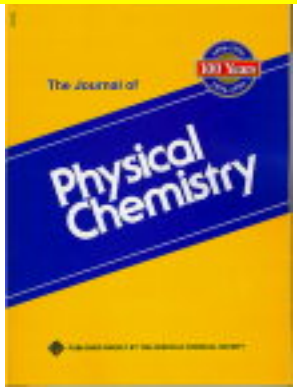
Published work is protected by Copyright Law
Copyright permission is necessary if you are reproducing your work in another publication (This applies even if it is your own work)

Guidelines For Authors and Scientists

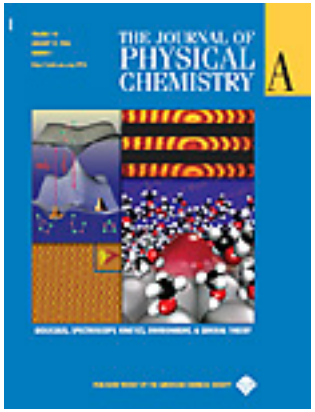
- Ethical Guidelines to Publication of Chemical Research (ACS Pubs. Div.) - available via Paragon or ACS Journals web site
- "On Being a Scientist: Responsible Conduct in Research"; National Academy Press, Wash. D.C, 1995 (http://www.nap.edu/readingroom/books/obas/)
- IEEE Policy Statement on Self-Plagiarism (http://www.comsoc.org/pubs/jrnal/transcom/Self_Plagiarism.pdf)
- Managing Allegations of Scientific Misconduct: A Guidance Document for Editors, January 2000, Office of Research Integrity, Office of Public Health and Science, U.S. Dept. of Health and Human Services http://ori.dhhs.gov

International Journal of Information and Communication Technology

1896-1996

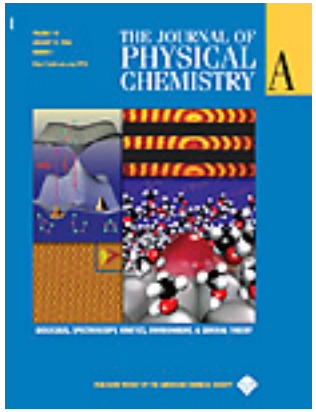


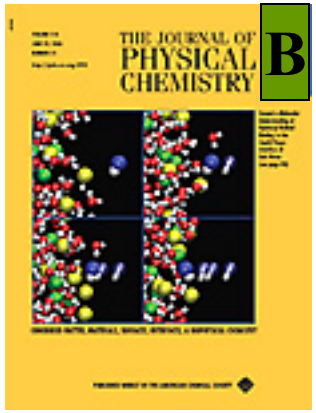
1997-2006



by
Prashant Kamat
Senior Editor
Univ. of Notre Dame

2007-





Scope

The Journal of Physical Chemistry **is devoted to reporting new and original experimental and theoretical basic research of interest to physical chemists, biophysical chemists, and chemical physicists.**

- **Papers submitted to J. Phys. Chem. should provide an in depth study and present important new scientific advances. It should also carry a strong scientific discussion.**
- **An important criterion for acceptance is that the paper provides new physical chemistry insights derived from the results.**

Types of Contributions

Letters are short articles **that report results whose immediate availability to the scientific community is deemed important**. Letters may occasionally have a follow-up publication when the research is continued and a more complete account of the work is deemed necessary.

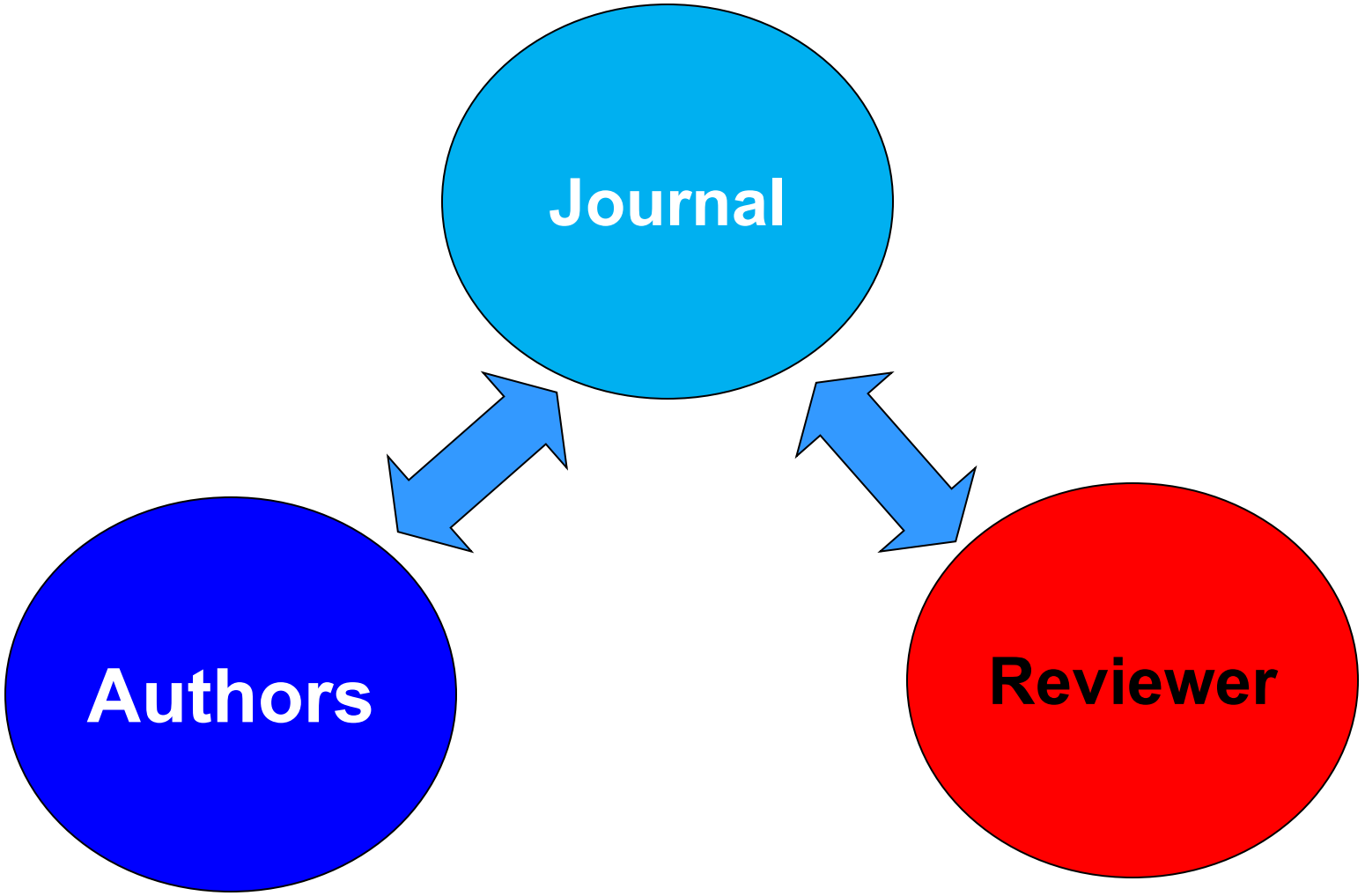
Articles should report original research that is **expected to have a definable impact on the advancement of science and technology.** Manuscripts should cover their subjects with thoroughness and clarity but should be as concise as possible.

Feature Articles/Review Articles **are usually published by invitation**; however, Authors in important active research fields of interest to physical chemists are encouraged to propose such articles. Two page proposals should be sent to the Editor-in-Chief for consideration.

NOTE: It is important to make a proper selection of the Letter or Article category during MS submission

International Journal of Information and Communication Technology

Scientific Publication is a Team Effort



Submission, Editorial Screening, Reviewing and Editorial Decision Processes

Title, Abstract and Figures

-Title should represent the content of the paper (avoid *study, investigation, novel, facile, simple …etc* in the title)

-Abstract should be concise.

Briefly indicate the problem, methods, results, and conclusions in a simple text that general audience can understand and appreciate your work.

-Figures should be checked carefully before submission.

Check font size, axis label and identification of individual traces

Avoid meaningless numbers

Clarity

Move additional/ repetitive figures to supporting information

Revision Request

- **Read the Reviewers comments carefully.**
- **The Reviewers and Editors spend a lot of time to make suggestions and improve the scientific quality of the paper. The authors should make every effort to address their concerns.**
- **Revision is an opportunity to improve the scientific quality of the paper. If these issues are not addressed properly, the paper gets rejected.**
- **Often misuse of scientific context or bad presentation leads to misunderstanding of the statement made in the text.**
- **Use supporting information to include figures, tables, derivations, movies, photographs, methods & techniques etc.**

Request for Revision is not a guarantee that the paper will be accepted

Do not get discouraged. Read editorial comments and discuss with advisor/students/collaborators. Find out how you can make this study stronger and acceptable for publication.

Do not just turn around and submit the paper to another journal. Read carefully the comments and find ways to improve the scientific quality of the papers

Carry out additional experiments and improve the quality of scientific discussions. (JPC often looks for papers with quantitative and mechanistic information that represent new physical insights)

Rejected papers can be resubmitted if and only the concerns of the reviewers are adequately addressed and new results are included.

If you have questions, please feel free to contact the editorial office.

What to Avoid?

- **Data without scientific discussion, applications of data, or reviews of the literature are not sufficient.**
- **Routine synthesis and characterization of nanomaterials or studies that report incremental advance are not considered suitable for publication.**
- **Use of the phrase "Novel" or "First-time" in the title or abstract. Such descriptions do not impress the reader or the reviewer.**
  (Another over used phrase "One-pot synthesis")
- **Names of flowers, fruits and vegetables to describe the nanoparticle/nanostructure shapes/morphology**

To do even better ….

The authors should make every effort to make a good presentation with proper usage of English grammar.

"English is not my Native Language" is not a valid justification for reviewer who cannot comprehend.

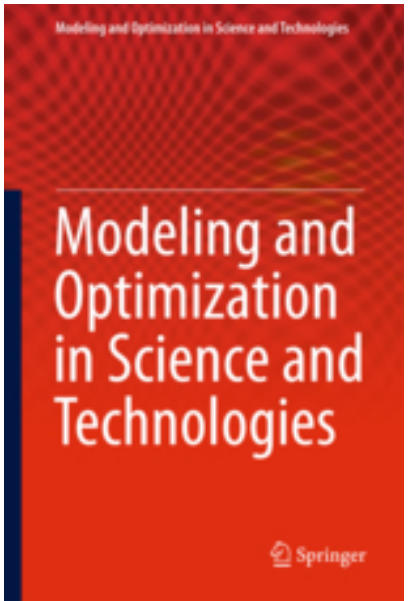
Reviewers do not wish to review papers that are not readable. Badly written papers are often recommended as "REJECT" by the Reviewers

ACS Publication office helps to edit the language for accepted manuscripts, but this only happens if the English was good enough to be reviewed.

Ten characteristics of an incredibly dull paper

1. Avoid Focus
2. Avoid originality and personality
3. Make the article really really long
4. Do not indicate any potential implications
5. Leave out illustrations (…too much effort to draw a sensible drawing)
6. Omit necessary steps of reasoning
7. Use abbreviations and technical terms that only specialists in the field can understand
8. Make it sound too serious with no significant discussion
9. Focus only on statistics
10. Support every statement with a reference

Thank you


Modeling and Optimization in Science and Technologies
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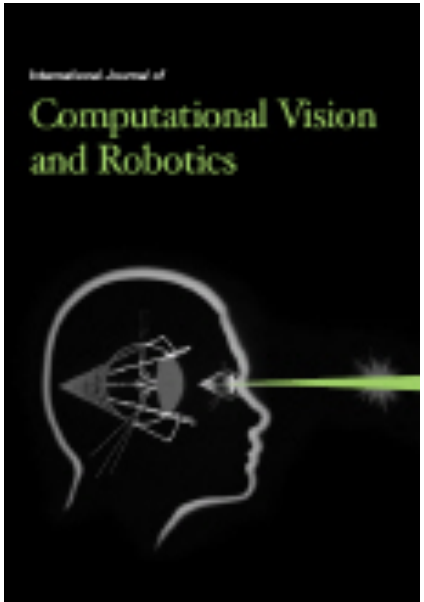
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