

and publish

How to Write a Good Research Paper

From title to references

From submission to acceptance



Presented by:
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November 2014

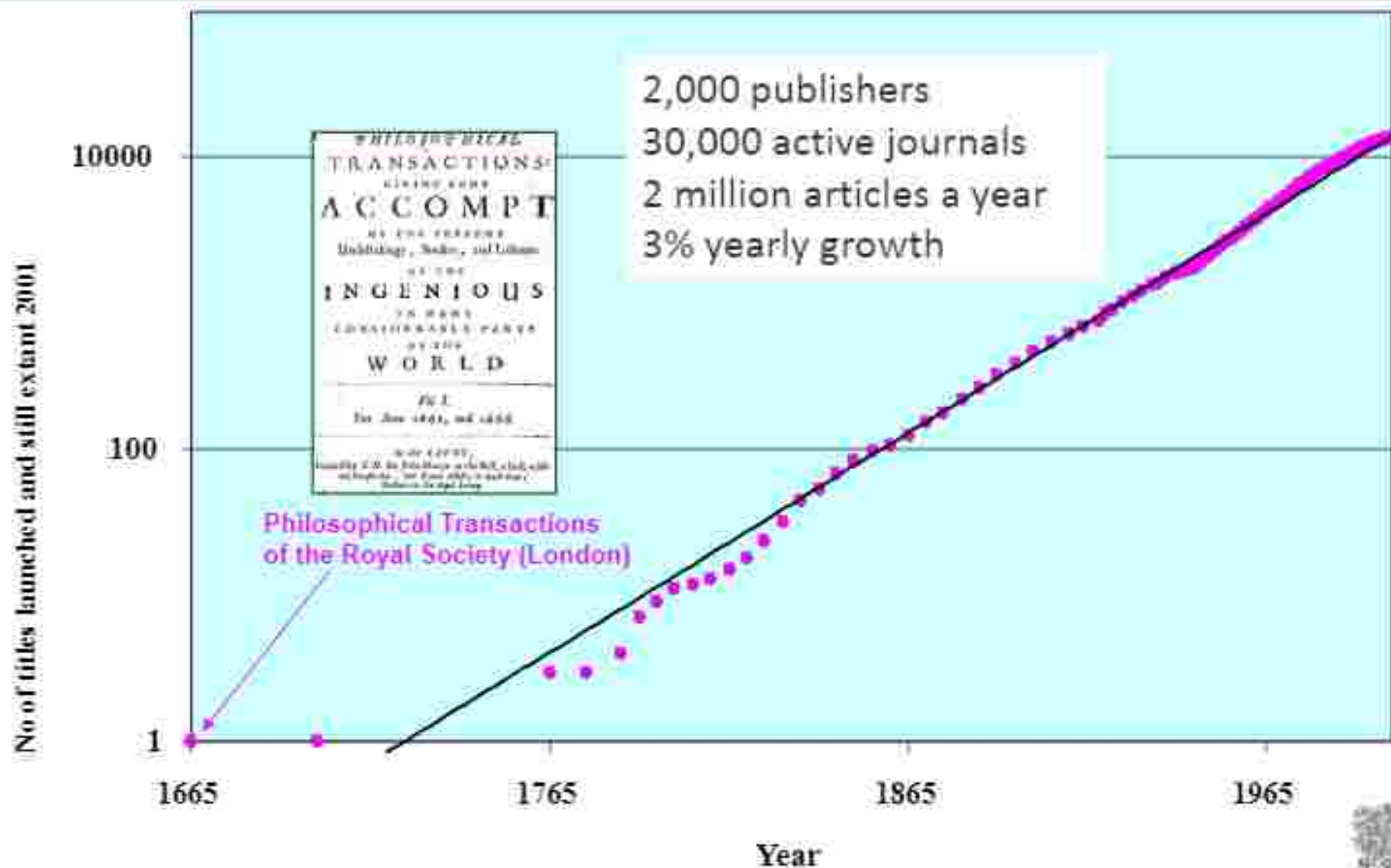


ELSEVIER

Outline

- **General introduction to publishing**
- **How to write and publish great papers**
 - Before you begin
 - Select your audience
 - The article structure
 - The review and editorial process
- **What not to do... (author responsibilities)**

Peer-reviewed Journal Growth 1665-2010



The Elsevier Publishing Cycle

- 10 Million articles online
- 30 Million researchers
- 480 million+ downloads per year

- 2,000 journals
- 7,000 editors
- 70,000 editorial board members
- 7 million author/publisher communications / year

Solicit and manage submissions

Manage peer review

- 500,000 reviewers
- 40 – 90% of articles rejected

Edit and prepare

Archive and promote use

Publish and disseminate



Production

- 450,000 new articles produced each year
- 185 years of back issues scanned, processed and data-tagged



Example: BBRC



- **8,000 mss** submitted per year
- **25 %** accepted
- **29** Editors
- **10 days** from submission to decision
- **3 weeks** from submission to online publication
- **78,500 +** article citations in 2013
- **4 mln** Full Text Article downloads in 2013

The screenshot shows the Elsevier website for the journal 'Biochemical and Biophysical Research Communications'. The page layout includes the Elsevier logo at the top left, a search bar, and navigation links. The main content area features a large article preview with a thumbnail image, followed by a list of articles with their titles and authors. The page is designed with a clean, professional look, typical of a scientific journal's online presence.

The people behind the journal BBRC



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Ernesto Carafoli



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How to Write a Good Research Paper

Before you start



Always keep in mind that ...

.... your published papers, as a permanent record of your research, and your passport to your community !



What are your personal reasons for publishing?



However, editors, reviewers, and the research community don't consider these reasons when assessing your work.

What to publish

What to publish:

- New and original results or methods that **advance** the **knowledge** and understanding in a certain scientific field
- Reviews or summaries of particular subject or field

Do NOT consider to publish:

- Results with lack of scientific interest
- Outdated work
- Duplication of work already published
- Incorrect data or conclusions not supported by data

You need a **STRONG** manuscript to present your contributions to the scientific community



A strong manuscript

- Good **CONTENT**
 - novel, useful, and exciting
- Good **PRESENTATION**
 - Clear presented and logically constructed
- Reviewers and editors are able to grasp the scientific significance **easily**

Before writing you should gather key information

1. Find out what topics are exciting

- most downloaded, e.g. <http://top25.sciencedirect.com/>
- most cited, e.g. <http://scopus.com/>
- most shared, e.g. <http://www.altmetric.com/>

Scopus



Altmetric

2. Find the trends of your subject area

- Keep informed of advances in the field through journal alerts
- PubMed, for example, shows number of papers per keyword per year of publication



3. Evaluate which journal is right for your manuscript

- Impact Factor
- SNIP & SJR (www.journalmetrics.com)
- *h*-Index
- Compare journals (Scopus)

SJR SCImago
Journal & Country
Rank

4. Find out more about the journals

- Who are the editors?
- Guide for authors



How to Write ^{and publish} a Good Research Paper

Select your audience and choose the right journal



Select the best journal for submission

Getting a research paper published can be a challenge.

Risks that come from submitting a paper to a journal that's not the right fit:

- Rejection
- Adding months to publication
- Slowing career progress

Select the best journal for submission

- Look at **your references** – these will help you narrow your choices.
- Use the **Journal Finder Tool** (elsevier.com/authors)
 - Helps inexperienced authors to select the correct journals
 - Helps authors working in multidisciplinary fields identify possible journals
 - Highlights journals that offer open-access options

Find a journal match for your abstract by clicking on the blue 'Start matching' button above.

Publishing process Find a journal Prepare your paper Submit paper Check status

Match your abstract to a journal Search for a journal by name

Start matching or Search for a Journal



Select the best journal for submission

Investigate all candidate journals to find out

- Aims and scope
- Accepted types of articles
- Readership
- Current topics
 - go through the abstracts of recent publications

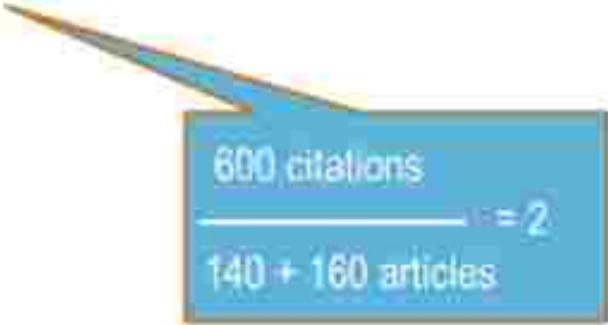
The screenshot shows the Elsevier website for the journal "Biochemical and Biophysical Research Communications". The page includes the Elsevier logo, navigation tabs for "Home", "About the journal", "Aims and scope", "Editorial board", and "Contact". The main content area features the journal's cover image, a description of the journal's focus on rapid publication of research in biochemistry and biophysics, and a list of recent articles. A red arrow points from a "Show preview" button in a separate box to the "Show preview" link in the article list.

 Show preview



What is the Impact Factor (IF)?

2013 IF calculation: $\frac{\text{Citations 2013 to publications 2011 \& 2012}}{\text{\# of publications 2011 \& 2012}}$


$$\frac{600 \text{ citations}}{140 + 160 \text{ articles}} = 2$$

Be aware that the Impact Factor:

- Tells you how often the papers in a journal are cited on AVERAGE
- It does NOT give an indication about a single (your) paper
- Varies considerably per scientific discipline

Select the best journal for submission

- Ask help from your supervisor and colleagues
 - Your supervisor (who is often a co-author) has at least co-responsibility for your work
- Make sure **all co-authors** agree to this list
- **DO NOT gamble** by submitting your manuscript to more than one journal at a time
 - International ethics standards prohibit multiple/simultaneous submissions, and editors DO find out! (Trust us, they DO!)

Select the best journal for submission



Do not just “descend the stairs”

Top journals

Nature, Science, Lancet, NEJM,



Field-specific top journals



Other field-specific journals



National journals

Read the 'Guide for Authors' – Again and again!

- Stick to the GfA in your manuscript, even in the first draft .
In the end it will save you time, and also the editor's.
- Editors (and reviewers) do not like wasting time on poorly prepared manuscripts. It is a sign of disrespect.



The screenshot shows the Elsevier website's 'Guide for Authors' page. The page is organized into several sections:

- INTRODUCTION**
 - Types of paper
 - Checklist for authors
- BEFORE YOU START**
 - Check a guideline
 - Home and office help
 - Check of access
 - Subscription location and access
 - Authors
 - Changes to authorship
 - Copyright
 - Role of the writing process
 - Copyrighting patents and papers
 - Copyrights
- LANGUAGE AND EDITING**
 - Language and editing services
 - Summary
 - Peer Review Policy
- PREPARATION**
 - Use of word processing software
 - Manuscript format length
 - Write a letter
 - Submit the original information
 - Address
 - Graphical output
 - Highlights
 - Reviews
 - Acknowledgement
 - Copyrights
- OUTSIDE LIVING**
 - Feedback
 - Answer
 - Titles
 - References
 - Video clip
 - Acknowledgement
 - Sample writing tips
- AFTER ACCEPTANCE**
 - Use of the Online Proof Service
 - Online proof service
- AUTHOR RIGHTS**

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How to Write a Good Research Paper

The language



Why Is Language Important?

Save your editor and reviewers the trouble of guessing what you mean

Complaint from an editor:

"[This] paper fell well below my threshold. I refuse to spend time trying to understand what the author is trying to say. Besides, I really want to send a message that authors can't submit a substandard paper to us and expect us to fix it. My rule of thumb is that if there are more than 6 grammatical errors in the abstract, then I don't waste my time carefully reading the rest."

Scientific Language – Overview

Write with clarity, objectivity, accuracy, and brevity.

Key to successful scientific writing is to be alert for common errors:

- Sentence construction
- Incorrect tenses
- Inaccurate grammar
- Spelling mistakes

Language Editing Services :

<http://webshop.elsevier.com/languageservices/languageediting>



Scientific Language – Sentences

- Write direct and short sentences – more professional looking
- One idea or piece of information per sentence is sufficient
- Avoid multiple statements in one sentence – they are confusing to the reader.

An example of what NOT to do:

“If it is the case, intravenous administration should result in that emulsion has higher intravenous administration retention concentration, but which is not in accordance with the result, and therefore the more rational interpretation should be that SLN with mean diameter of 46nm is greatly different from emulsion with mean diameter of 65 nm in entering tumor, namely, it is probably difficult for emulsion to enter and exit from tumor blood vessel as freely as SLN, which may be caused by the fact that the tumor blood vessel aperture is smaller.”

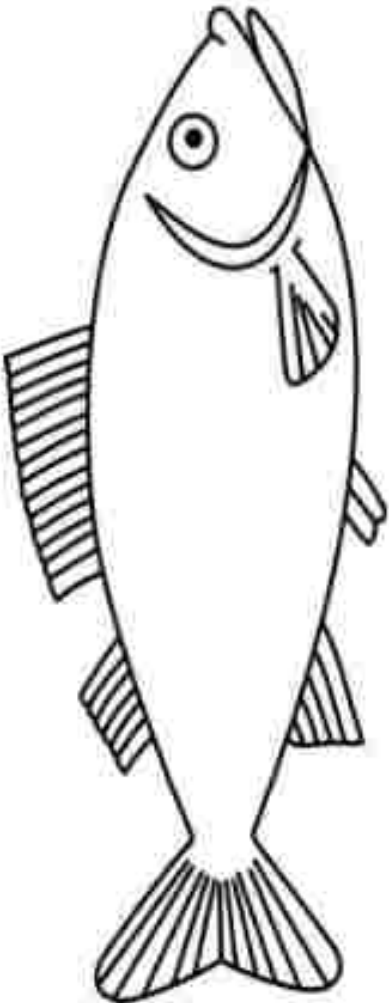
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How to Write a Good Research Paper

The article structure



General Structure of a Research Article



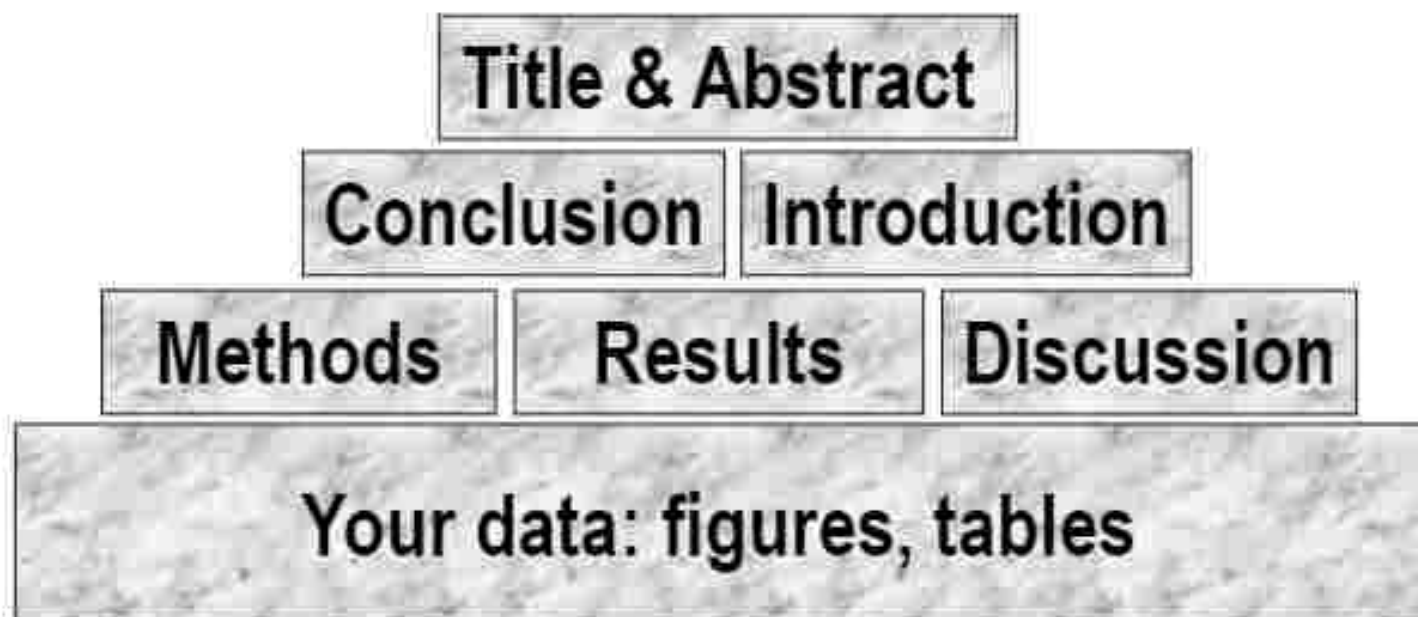
- Title
- Abstract
- Keywords

Make it easy for indexing and searching
(informative, attractive, effective)

- Main text
 - Introduction
 - Methods
 - Results
 - Discussion

- Conclusion
- Acknowledgements
- References
- Supplementary Data

The process of writing – building the article



Title

A good title should contain the **fewest** possible words that **adequately** describe the contents of a paper.

Articles with short, catchy titles are better cited

Keywords

In an electronic world, keywords determine whether your article is found or not!



Avoid making them

- too general (“drug delivery”, “mouse”, “disease”, etc.)
- too narrow (so that nobody will ever search for it)

TIPS:

- Look at the keywords of articles relevant to your mss
- Play with these keywords, and see whether they return relevant papers, neither too many nor too few
- Search for your keywords online: would readers find YOUR article using them?

Abstract

Tell readers what you did and the important findings

- Advertisement for your article
- One paragraph (50-250 words) often
- Be accurate and specific
- A clear abstract will strongly influence if your work is considered further

Graphite intercalation compounds (GICs) of composition $G_xN(SO_2CF_3)_2 - \delta F$ are prepared under ambient conditions in 48% hydrofluoric acid, using K_2MnF_6 as an oxidizing reagent. The stage 2 GIC product structures are determined using powder XRD and modeled by fitting one dimensional electron density profiles.

What has been done

A new digestion method followed by selective fluoride electrode elemental analyses allows the determination of free fluoride within products. The compositional x and δ parameters are determined for reaction times from 0.25 to 500 h.

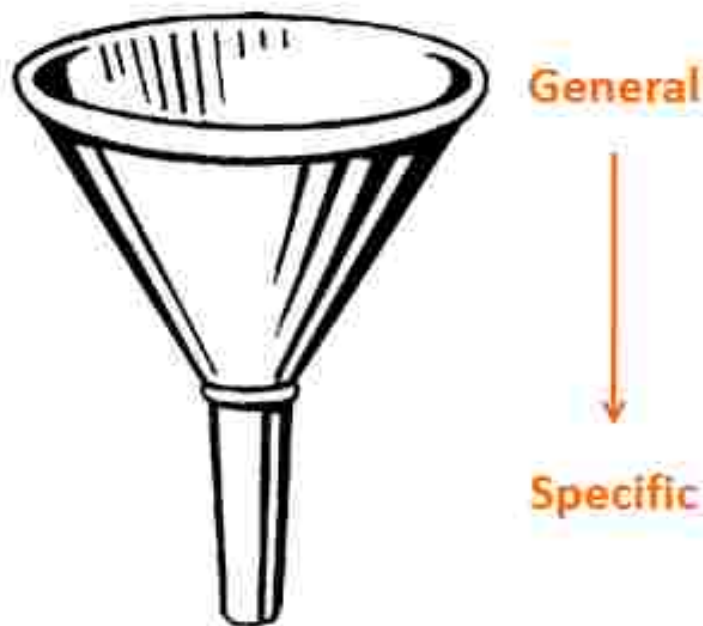
What are the main findings

Introduction – Puts your data into perspective

The place to convince readers that you know why your work is relevant, also for them

Answer a series of questions:

- What is the problem?
- Are there any existing solutions?
- Which one is the best?
- What is its main limitation?
- How do you hope to improve or contribute to this?



Methods / Experimental section

- **Include all important details so that the reader can repeat the work:**
 - Details that were previously published can be omitted but a general summary of those experiments should be included
- **Give vendor names (and addresses) of equipment used, etc.**
- **All chemicals must be identified:**
 - Do not use proprietary, unidentifiable compounds without description
- **Present proper control experiments.**
- **Avoid adding comments and discussion.**
- **Consider use of Supplementary Materials:**
 - Documents, spreadsheets, audio, video,

Results – what have you found?

Driving force of the publication:

Tell a clear and easy-to-understand story



The following should be included:

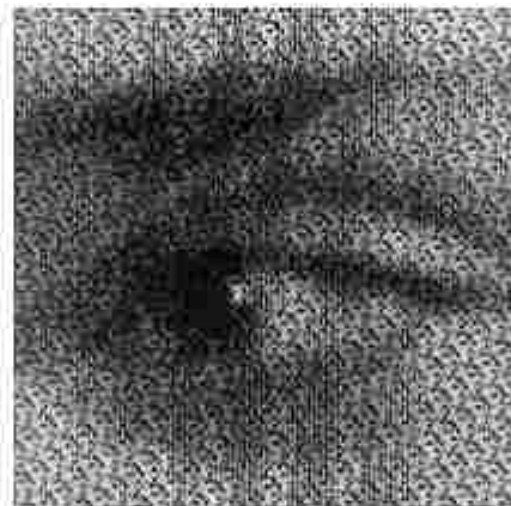
- the **main findings**
 - Thus not *all* findings
 - Findings from experiments described in the Methods section
- Highlight findings that **differ** from findings in previous publications, and **unexpected** findings
- Results of the **statistical analysis**

Results – Figures and tables

Illustrations are critical, because

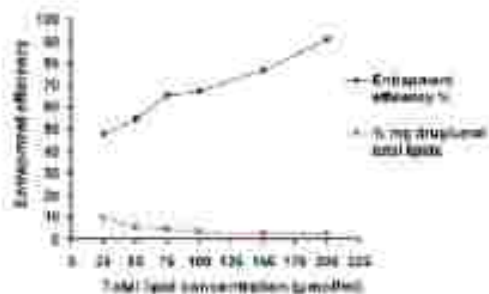
- Figures and tables are the most efficient way to present results
- Captions and legends must be detailed enough to make figures and tables self-explanatory
- No duplication of results described in text or other illustrations

*"One Picture is Worth a
Thousand Words"
Sue Hanauer (1968)*



Figures and tables – Appearance counts!

- Un-crowded plots
 - 3 or 4 data sets per figure; well-selected scales; appropriate axis label size; symbols clear to read; data sets easily distinguishable.
- Text in photos / figures in English
- Each photograph must have a scale marker of professional quality in a corner.
- Use color *ONLY* when necessary. Color must be visible and distinguishable when printed in black & white.
- Do not include long boring tables!



Discussion – what do the results mean?

- **Here you get the chance to SELL your data!**
 - Many manuscripts are rejected because the Discussion is weak
- **Check for the following:**
 - How do your results relate to the original question or objectives outlined in the Introduction section?
 - Do you provide interpretation for each of your results presented?
 - Are your results consistent with what other investigators have reported? Or are there any differences? Why?
 - Are there any limitations?
 - Does the discussion logically lead to your conclusion?
- **Do not:**
 - Make statements that go beyond what the results can support
 - Suddenly introduce new terms or ideas

Conclusions

- Do not summarize the paper
 - The abstract is for that purpose
- Present what have you shown and what it means for the field
- Suggest future experiments and indicate whether they are underway
- Avoid bold judgments about impact

References: get them right!

- Cite the main scientific publications on which your work is based
- Check
 - Referencing style of the journal (Guide for Authors)
 - The spelling of author names, the year of publication
 - Punctuation use

Cover Letter

Your cover letter should:

- Submit your application
- Mention particular points
- Note special circumstances or conflicts of interest

Professor H. D. Schmidt
School of Science and Engineering
Northeast State University
College Park, MI 10000
USA

January 1, 2008

Dear Professor Schmidt,

Enclosed with this letter you will find an electronic submission of a manuscript entitled "Mechano-sorptive creep under compressive loading - a micromechanical model" by John Smith and myself. This is an original paper which has neither previously nor simultaneously in whole or in part been submitted anywhere else. Both authors have read and approved the final version submitted.

Final approval from all authors

Mechano-sorptive is sometimes denoted as accelerated creep. It has been experimentally observed that the creep of paper accelerates if it is subjected to a cyclic moisture content. This is of large practical importance for the paper industry. The present manuscript describes a micromechanical model on the fibre network level that is able to capture the experimentally observed behaviour. In particular, the difference between mechano-sorptive creep in tension and compression is analysed. John Smith is a PhD-student who within a year will present his doctoral thesis. The present paper will be a part of that thesis.

Explanation of importance of research

Three potential independent reviewers who have excellent expertise in the field of this paper are:

Dr. Hernandez, Tennessee Tech, email1@university.com
Dr. Chen, University of Maine, email2@university.com
Dr. Singh, Colorado School of Mines, email3@university.com

I would very much appreciate if you would consider the manuscript for publication in the *International Journal of Science*.

Very yours,

Suggested reviewers

A. Professor



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Suggest potential reviewers

- Usually **3-6** (see Guide for Authors)
- Authors in your subject area (see your references)
- International
- **NOT** collaborators or friends



and publish

How to Write a Good Research Paper

The review and editorial process

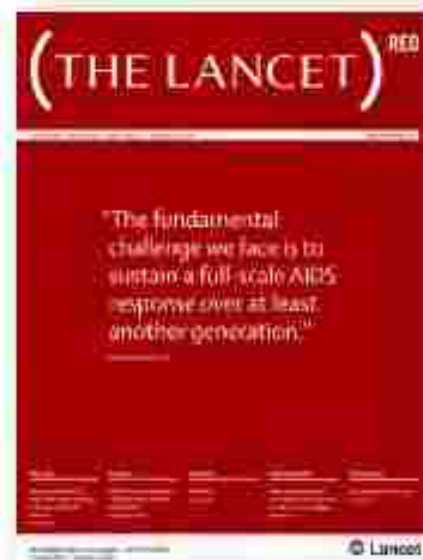


Initial Editorial Review or Desk Reject

Many journals use a system of initial editorial review. Editors may reject a manuscript without sending it for review

Why?

- It is a **disservice** to ask reviewers to spend time on work that clearly does not fit that particular journal or that has evident deficiencies.
- The peer-review system is **grossly overloaded** and editors wish to use reviewers only for those papers with a good probability of acceptance.



First Decision: "Accepted" or "Rejected"

Accepted

- Very rare, but it happens



- **Congratulations!**

- Cake for the department
- Now wait for page proofs and then for your article to be online and in print

Rejected / Revision

- Probability 40-90% rejected ...
- **Do not despair** - It happens to everybody
- **Try to understand WHY**
 - Consider reviewers' advice
 - Be self-critical
- **If you re-submit to same journal**
 - Respond to reviewer's and editor's comments
 - Regard it as a new manuscript
- **If you submit to another journal**
 - Take advantage of the reviewers' comments (they may review your paper for the other journal too!)
 - Read the Guide for Authors of the new journal, again and again.



Publication Ethics



Publish *AND* Perish! – if you break ethics rules

- **International** scientific ethics has evolved over centuries, and are commonly held throughout the world.
- Scientific ethics is not considered to have national variants or characteristics
 - there is a ***single ethics standard*** for science.



M. Errami & H. Garner
A tale of two citations
Nature 451 (2008), 397-399

Ethics Issues in Publishing

Scientific misconduct

- Falsification of results
- Data fabrication

Publication misconduct

- (Self-)Plagiarism
 - Different forms/ severities
 - ~~The paper must be original to the authors~~
- **Inappropriate identification of co-authors**
- Duplicate submission
- Duplicate publication
- Inappropriate acknowledgement of prior research and researchers
- Conflict of interest



Authorship

Corresponding Author	Co-authors	Acknowledgment
<ul style="list-style-type: none">• Often a senior author• The contact person for the publisher, and future readers• Ensures that all appropriate co-authors and no inappropriate co-authors are included on the paper• Ensures that all co-authors have agreed to the manuscript and its publication	<p>All those that have made a significant contribution to the conception, design, execution, or interpretation of the reported study</p> <p><i>(International Committee of Medical Journal Editors – ICMJE)</i></p>	<p>Others who have participated in certain substantive aspects of the research project.</p>

- ❖ **All authors** need to approve the final version and agree to its submission for publication
- ❖ All co-authors sign on to take responsibility and credit for the **entire** manuscript
- ❖ **Changes to authorship** after submission are strongly discouraged

Authorship – Abuses to avoid

Abuses to be avoided:

- **Ghost Authorship:** leaving out authors who should be included
- **Gift Authorship:** including authors who did not contribute significantly

Acknowledgements:

Recognize those who helped in the research but do not qualify as authors (you want them to help you again, don't you?):

Advisors

Financial supporters

Proofreaders

Typists

Suppliers who may have given materials



Questions, slide set & certificate of attendance

For **questions** about this presentation please contact d.alsina@elsevier.com

This **set of slides as a PDF** will be available through the conference organisers. There is full permission granted to distribute them as long as they are not edited.



A **personal certificate of attendance** will be provided 2 weeks after filling in the **online survey** at:

https://www.surveymonkey.com/s/2014_280_sur

Free webinars and workshops:

<http://www.elsevier.com/early-career-researchers/training-and-workshops>

