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How to write a scientific manuscript and get it published Lucie Boudová, PhD.







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# **Outline**



### What will we cover?

Setting the scene

Before writing your paper

Structuring and writing your article

English language

Submitting your paper

The review process

**Ethics** 

Dissemination





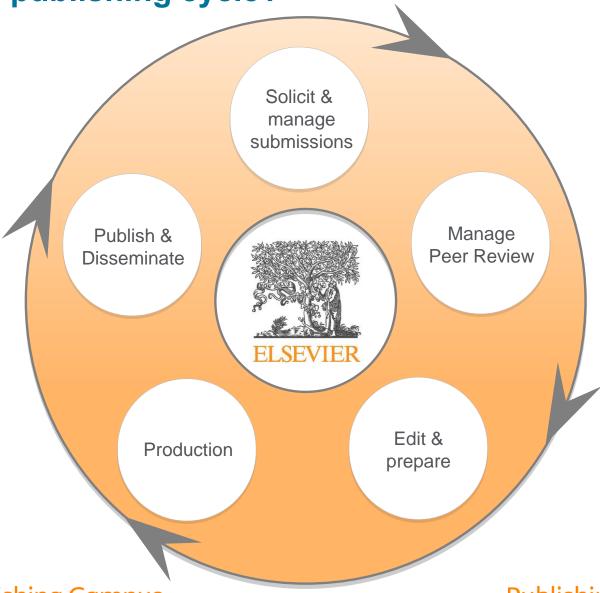
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# **Setting the scene**



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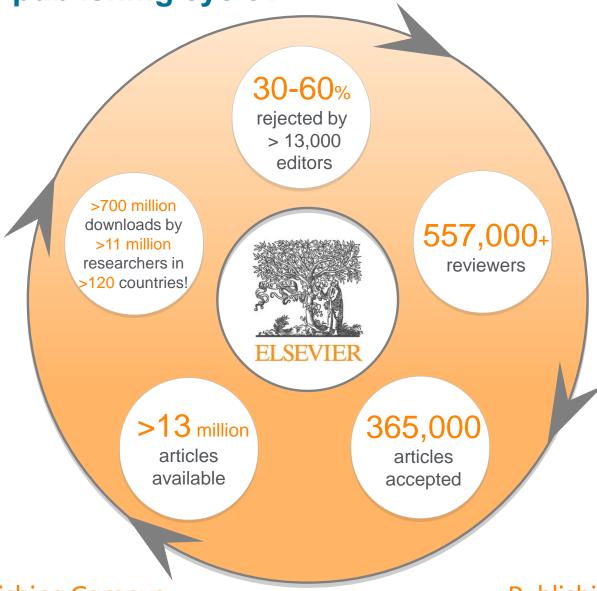
What is the publishing cycle?



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What is the publishing cycle?



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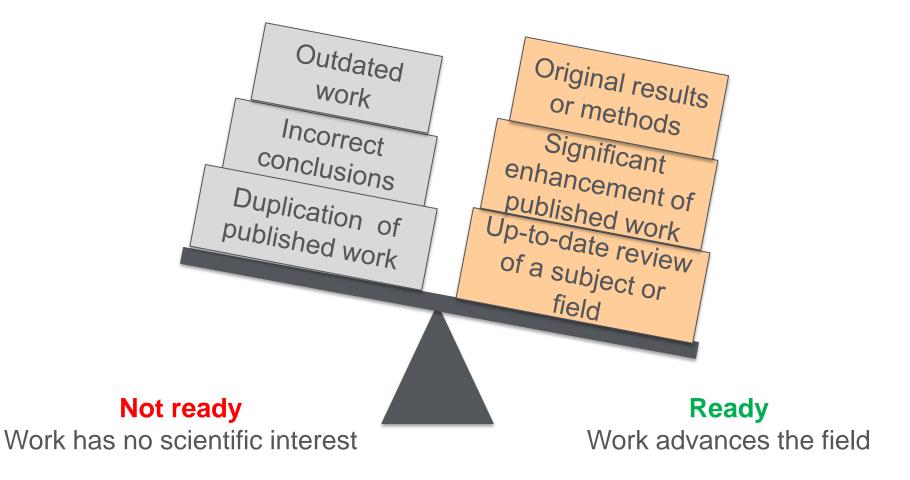


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# Before writing your paper



# Planning your article – Are you ready to publish?



# What makes a strong manuscript?



- Clear and useful message
- A logical manner
- Readers grasp the research

Editors, reviewers and readers all want to receive well presented manuscripts that fit within the aims and scope of their journal.

# What article type should I choose?



#### **Full articles**

Substantial, complete and comprehensive pieces of research Is my message sufficient for a full article?



#### Letters or short communications

Quick and early communications Are my results so thrilling that they should be shown as soon as possible?



## Review papers

- Summaries of recent developments on a specific topic
- Often submitted by invitation

# What about if I have a methods, data or software paper?

Adaptations and customizations to methods (Example journal: MethodsX)



Published datasets: available for sharing and reuse (Example journal: Data in Brief)



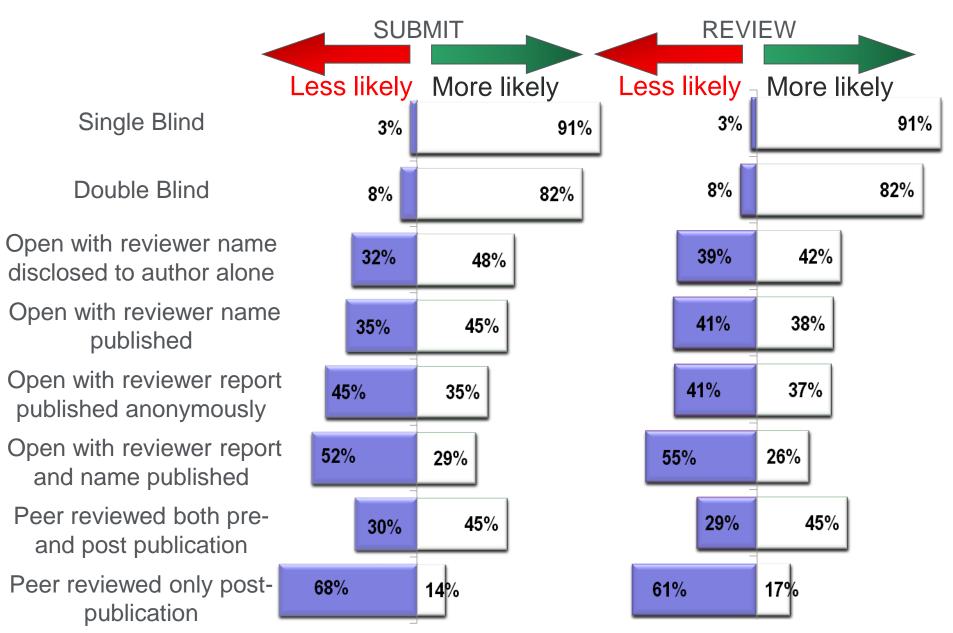
Articles that acknowledge the impact of software on research (Example journal: SoftwareX)



# How do I choose the right journal?

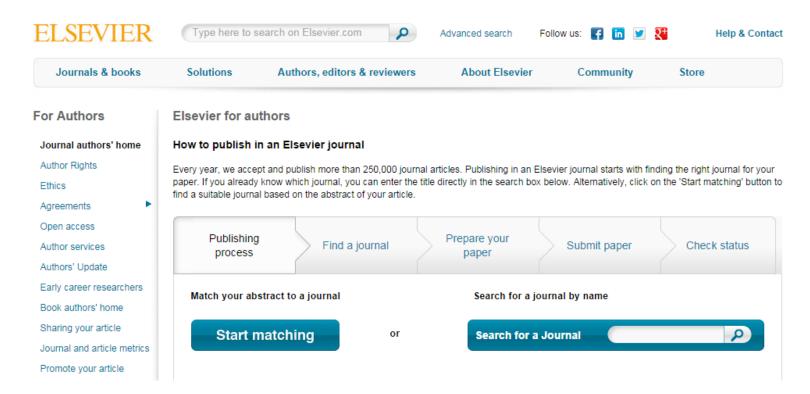
- Aim to reach the intended audience for your work
- 1. Shortlist a handful of candidate journals
  - Check your reference list
  - Supervisor and colleagues can provide good suggestions
  - Search in databases, check quality indicators
- 2. And investigate them:
  - ? Aims & Scope
  - ? Accepted types of articles
  - ? Readership
  - ? Peer review process (single blind, double blind, open)
  - ? Speed of publication
  - ? Subscription versus Open Access
- Choose only one journal, as simultaneous submissions are prohibited

## What are the different kinds of review that exist?



# Are there any tools available to help me find the right journal?

http://journalfinder.elsevier.com/

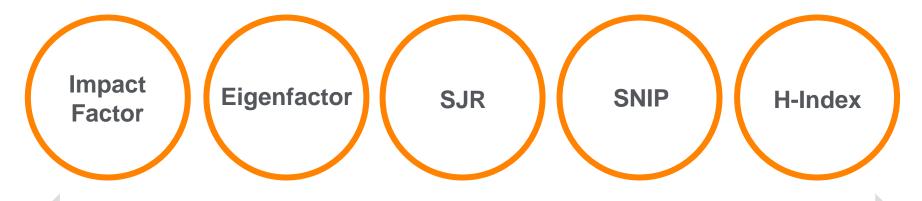


# **Choosing the right journal The Impact Factor**

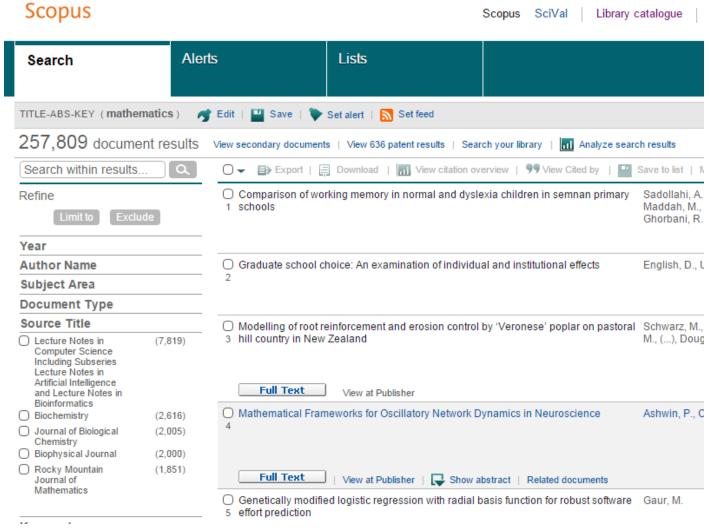
- It indicates how many times the more recent papers in a journal are cited on average in a given year
- It is influenced by editorial policies of journals and turnover of research

The impact factor can give you a general guidance, but it should NOT be the sole reason to choose a journal.

## **Bibliometric indicators**

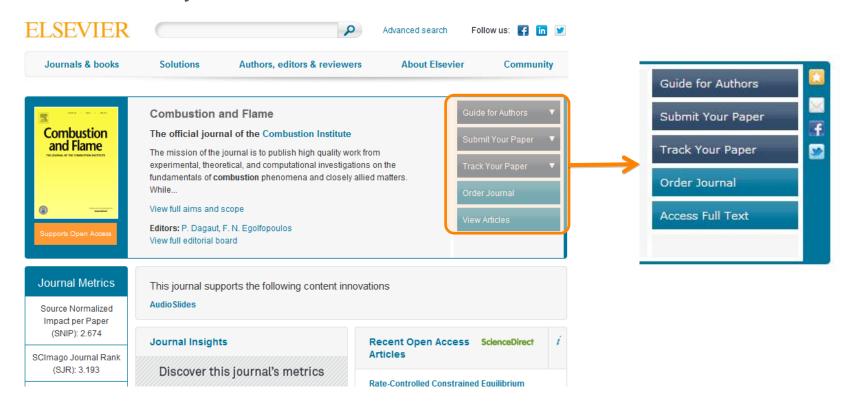


# Scopus provides quantitative and qualitative insights for selecting a journal



### Do I need to bother with the Guide for Authors?

- Find it on the journal homepage of the publisher, e.g. Elsevier.com
- Keep to the Guide for Authors in your manuscript
- It will save your time



# **Recap – before writing your paper:**

**Determine** if you are ready to publish your work

Decide on the best type of manuscript

**Choose** the target journal

**Check** the Guide for Authors

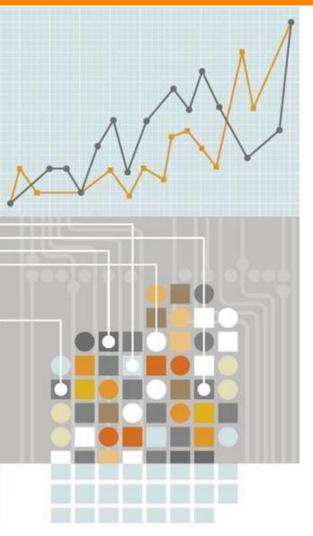




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# Structuring and writing your paper





## General structure of a research article

- Title
- **Abstract**
- Keywords
- Introduction
- Methods
- Results and Discussion
- Conclusion
- Acknowledgements
- References
- Supporting materials

# What tips do you have for: the title?

- Should attract reader's attention
- Should be concise
- Should be specific and informative
- Should identify the main issue
- Should use formal language
- Should NOT use technical jargon or rarely-used abbreviations

Editors and reviewers do not like titles that make no sense or fail to represent the subject matter adequately. Additionally, if the title is not accurate, the appropriate audience may not read your paper.



#### Combustion and Flame

Available online 9 March 2015

In Press, Corrected Proof - Note to users



The effect of oxidation pressure on the equilibrium nanostructure of soot particles

# What tips do you have for: the keywords?

- Are the labels of the manuscript
- Are used by indexing and abstracting services

Article title	Keywords
"An experimental study on	Solar collector; supercritical
evacuated tube solar collector	CO2; solar energy; solar
using supercritical CO2"	thermal utilization

- Should be specific
- Should use only established abbreviations (e.g. DNA)

Check the Guide for Authors for specifics on which keywords should be used.

# What tips do you have for: the abstract?

- Keep it as brief as possible
- Summarize the problem, methods, results, and conclusions
- Make sure it is clearly written and easy to understand
- Make sure it is accurate and specific while also being catchy

Take the time to write the abstract very carefully. Many authors write the abstract last so that it accurately reflects the content of the paper.

# What tips do you have for: the introduction?

- Provide a brief and concise context
- Explain the problem
- Mention existing solutions and limitations
- Identify what the work is trying to achieve
- Provide a perspective consistent with the nature of the journal

Write a unique introduction for every article. DO NOT reuse introductions.

# What tips do you have for: the methods?

- Describe how the problem was studied
- Include detailed information
- Do not describe previously published procedures
- Identify the equipment and materials used

# What tips do you have for: the results?

- Include only data of primary importance (use supplementary data for the rest)
- Use sub-headings to keep results of the same type together
- Be clear and easy to understand
- Highlight the main findings
- Feature unexpected findings
- Provide statistical analyses
- Provide visualisations

Collection of indirect experimental...
 Selection of rate parameters to be...
 Determination of the *a priori* uncer...
 Collection of relevant direct meas...
 Calculation of response surfaces
 Parameter optimization
 Investigation of the optimized mec...
 The *a posteriori* uncertainty of the ...
 Conclusions
 Acknowledgements

Appendix A. Supplementary data

Appendix A. Supplementary data

PDF

Supplementary data 1.

Supplementary material.

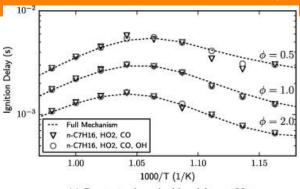
Help with PDF files

http://www.elsevier.com/connect/a-5-step-guide-to-data-visualization

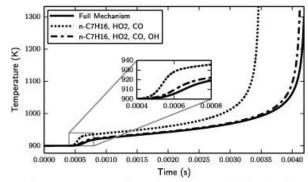
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# What tips do you have for: figures?

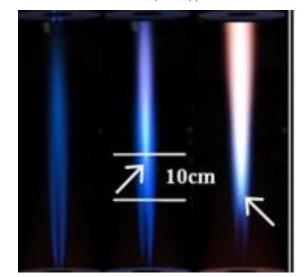
- The legend should enable the figure to stand alone.
- Use colour ONLY when necessary
- Graphs: un-crowded plots; restrict data sets (symbols to distinguish); well-selected scales; axis labels; label size.
- Photos: scale marker; do not manipulate the image to enhance the results.



(a) Constant volume ignition delays at 20 atm



(b) Temperature trace of constant-volume autoignition simulation at 900 K, 20 atm,  $\phi=0.5$ 



# What tips do you have for: tables?

#### Needs a table

During the encoding task, significant activation clusters were detected in the left middle frontal gyrus (MFG) extending into the inferior frontal gyrus (IFG) (BA 9/45/ 47; Talaraich coordinates: -40, 14, 28), left MFG (BA 8; -40, 22, 50), left superior frontal gyrus (BA 6; -24, -8, 64), right IFG (BA 47; 28, 28, -2), left LTL (BA 22; -62, -22, 2), right cerebellum (30, -70, -16) together with right fusiform/lingual gyrus (BA 18; 18, -88, -14), left cerebellum/vermis (-6, -60, -16) (Fig. 1, top row) as well as the left (-30, -12, -18) and right hippocampus (34, -12, -16) (Fig. 2, left panel). During the retrieval task, when performance was not considered, significant activation clusters were detected in the left IFG (BA 47; -28, 24, -4), left MFG/IFG extending into the anterior cingulate cortex (BA 9/44/24; -36, 12, 28), right IFG (BA 44; 56, 16, 24 and BA 47; 36, 20, -10), left supramarginal gyrus (BA 40; -34, -46, 42), right putamen and caudate (16, 10, 2), right cerebellum (36, -74, -18) together with right fusiform/lingual gyrus (BA 18; 28, -90, -6) and vermis (-2, -62, -40) (Fig. 1, middle row) as well as the right hippocampus (26, -4, 22) (Fig. 2, right panel). During retrieval, brain activation related to accurate memory performance was observed in the left LTL (Fig. 1, bottom row), with peak activation in the middle temporal gyrus (BA 21 and 22; -50, -38, -4) extending into the superior and inferior temporal gyri. No activation clusters were detected in the prefrontal cortex, hippocampus, or other MTL structures. No brain regions showed negative correlations with behavioral performance.

### Does not need a table

Table 1. Effe	ect of aeration of	on growth of Streptom	yces coelicolor
Temp (°C)	No. of expt	Aeration of growth medium	Growth <sup>a</sup>
24	5	+b	78
- 1	E		0

<sup>&</sup>quot;As determined by optical density (Klett units).

Growth medium aeration was essential for the growth of S. coelicolor. At room temperature (24° C) in stationary cultures, bacterial growth was not measurable, whereas in aerated cultures, substantial growth was evident (78 Klett units).

<sup>&</sup>lt;sup>b</sup> Symbols: +, 500-ml Erlenmeyer flasks were aerated by having a graduate student blow into the bottles for 15 min out of each hour; -, identical test conditions, except that the aeration was provided by an elderly professor.

# What tips do you have for: the discussion?

- Interpretation of results
- Most important section
- Make the discussion correspond to the results and complement them
- Compare published results with your own

# What tips do you have for: the conclusion?

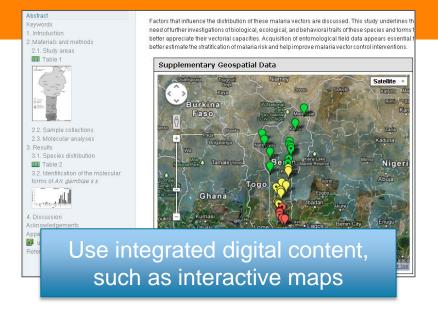
- Explain how your work advances the present state of knowledge
- Suggest future experiments
- Do not repeat results or the abstract

# Who should I acknowledge?

- Advisors
- Financial supporters and funders
- Proof readers and typists
- Suppliers who may have donated materials

# What tips do you have for: the references?

- Do not use too many references
- Always ensure you have fully absorbed the material you are referencing
- Avoid excessive self citations or citations to publications from the same region or institute
- Conform to any requirements outlined in the Guide for Authors
- Consider using a reference manager such as Mendeley







Free fatty acid content

100

92.9

10 wt.%

93.9

Create a Graphical

**Abstract** 

Catalyst: Zn oleate

TG Conversion (%)

FFA conversion (%)

High free fatty acids

FAME yield (%)

Zn oleate

t=0

Simultaneous transesterification

and esterification

Zn glicerolate



a data repository

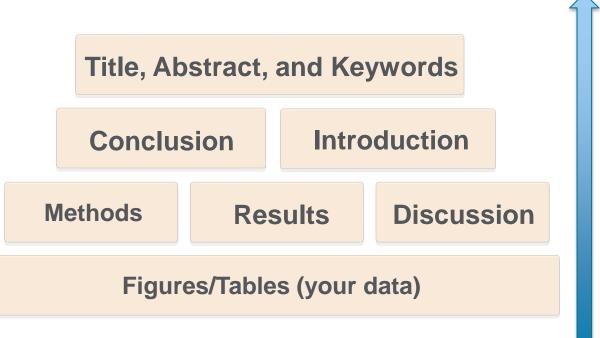
Include Highlights



- · We conducted an experiment with a typical bituminous coal sample to understand the mechanism of growth and shedding of ash deposition.
- Based on video camera observations and measurements of the tube surface temperature, a residual layer remained on the tube after shedding of the ash deposition.
- The distribution of particle packing fraction (PPF), particle size, and chemical composition of the deposit were analyzed by SEM and CCSEM to elucidate the growth mechanism of ash deposition.
- A low-strength powder layer with low PPF and deficiencies of iron and alkaline compositions was formed within the initial ash layer.
- Based on the SEM image of the residual layer remaining after shedding, failure of the ash deposit occurred in the low-strength powder layer.

# **Building your paper brick by brick**





# Recap – when writing your paper:

Start with your data

Move onto the main part of your article – **methods**, **results and discussion** 

Show how your work advances the field via the **conclusion** Set your work in a broader context via the **introduction** 

Pay special attention to the title, abstract and keywords

Credit those who have helped you via **acknowledgements** and the resources you have consulted via **references** 

Enhance your article via available content innovation features





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## **English language**



"It is quite depressive to think that we are spending millions in grants for people to perform experiments, produce new knowledge, hide this knowledge in a often badly written text and then spend some more millions trying to second guess what the authors really did and found."

Amos Bairoch, Nature Proceedings, 2009

### Why is language important?

- Without clear and accurate language the meaning of the paper may be misunderstood
- Poor language quality can delay publication or lead to rejection

### Do publishers correct language?

No!
It is the author's responsibility...

...but **resources** are available

### **Manuscript language**

- Clear
- Objective
- Accurate
- Concise

#### **Common errors**

- Incorrect sentence construction
- Incorrect tenses
- Incorrect grammar
- Inconsistent use of English throughout the paper
- Sentences too long

### Recap – manuscript language:

Good language is vital to ensure readers understand your message

Good language is key to getting your paper **accepted** for publication by busy editors and reviewers

Publishers do not edit your language for you but they do provide resources and services to help

The author is responsible for how their research is conveyed

Write clearly and concisely





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### **Submitting your paper**



#### **Revise before submission**



### **Covering Letter**

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

January 1, 2008

Dear Professor Schmidt,

Final approval from all the authors

Enclosed with this letter you will find en electronic submission of a manusentitled "Mechano-sorptive creep under compressive loading – a micromodel" by John Smith and myself. This is an original paper which reither previously nor simultaneously in whole or in part been submitted where else. Both authors have read and approved the final version submitted.

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, difference between mechano-sorptive creep in tension and compression is analy John Smith is a PhD-student who within a year will present his doctoral thesis. present paper will be a part of that thesis.

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

Dr. Fernandez, 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.

Explanation of the importance of the research

Suggested reviewers

ly yours,

A. Professor

### **Recap – submitting your paper:**

Check

Check

Check (again)

Include a covering letter



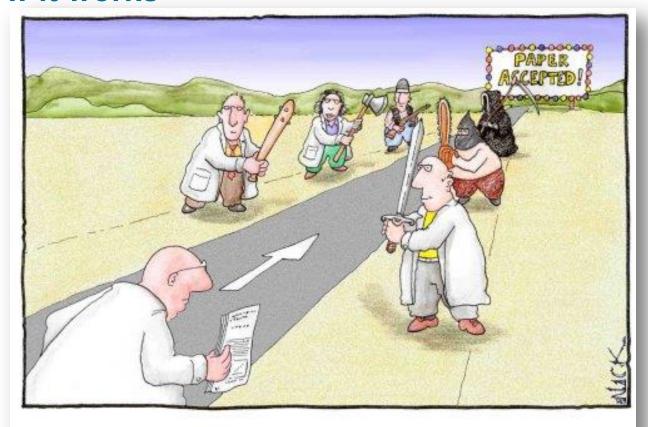


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### Review



### Not how it works

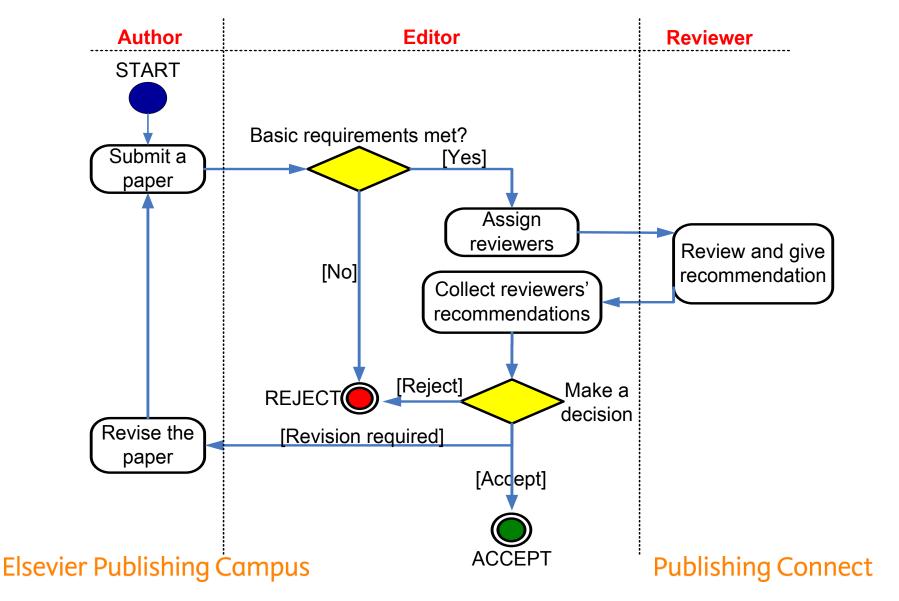


Most scientists regarded the new streamlined peer-review process as 'quite an improvement.'

#### Peer review

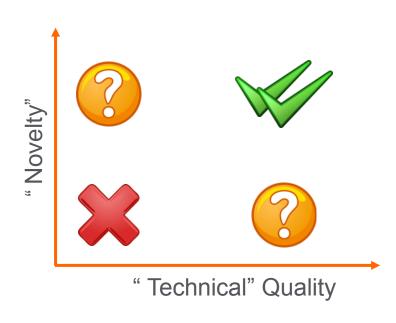
- Helps to determine the quality, validity, significance, and originality of research
- Helps to improve the quality of papers
- Publishers are outside the academic process and are not prone to prejudice or favour
- Publishers facilitate the review process by investing in online review systems and providing tools to help Editors and Reviewers

### What actually happens



### What are reviewers looking for?

- Importance of the hypothesis
- Originality
- Clear progression through the paper
- Well presented



### Addressing reviewer and editor feedback

# ADDRESSING REVIEWER COMMENTS

BAD REVIEWS ON YOUR PAPER? FOLLOW THESE GUIDE-LINES AND YOU MAY YET GET IT PAST THE EDITOR:

#### Reviewer comment:

"The method/device/paradigm the authors propose is clearly wrong."

#### How NOT to respond:

X "Yes, we know. We thought we could still get a paper out of it. Sorry."

#### Correct response:

"The reviewer raises an interesting concern. However, as the focus of this work is exploratory and not performance-based, validation was not found to be of critical importance to the contribution of the paper."

#### Reviewer comment:

"The authors fail to reference the work of Smith et al., who solved the same problem 20 years ago."

#### How NOT to respond:

X"Huh. We didn't think anybody had read that. Actually, their solution is better than ours."

#### Correct response:

"The reviewer raises an interesting concern. However, our work is based on completely different first principles (we use different variable names), and has a much more attractive graphical user interface.

#### Reviewer comment:

"This paper is poorly written and scientifically unsound. I do not recommend it for publication."

#### How NOT to respond:

X"You #&@\*% reviewer! I know who you are! I'm gonna get you when it's my turn to review!"

#### Correct response:

"The reviewer raises an interesting concern. However, we feel the reviewer did not fully comprehend the scope of the work, and misjudged the results based on incorrect assumptions.

www.phdcomics.com

JORGE CHAM @ 2005

### Recap – the review process:

The review process is managed by the handling editor

Editors can and do desk reject papers

Papers that pass the basic journal requirements are sent out for review where expert peers provide assessments

Papers may be accepted, rejected or sent back to the author for revision

Reviewers and editors are looking for novel research of high technical quality

The revision process should be seen as constructive





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### **Publishing ethics**



#### What is unethical behaviour?

- Fabrication of data or cases
- Wilful falsification of data
- Plagiarism
- No ethics approval
- Not admitting missing data
- Ignoring outliers
- No data on side effects
- Gift authorship
- Redundant publication
- Inadequate literature search



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### What is plagiarism?

"Plagiarism is the appropriation of another person's ideas, processes, results, or words without giving appropriate credit, including those obtained through confidential review of others' research proposals and manuscripts."

Federal Office of Science and Technology Policy, 1999

#### Copying any of these would be plagiarism:

- Words (language)
- Ideas
- Findings
- Writings
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- Graphic representationsInf
- Computer programs
- Diagrams Graphs
- Illustrations

- Information
  - Lectures
- Printed material
- Electronic material

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### Did you know? Plagiarism also includes:

- Paraphrasing restating someone else's ideas while not copying their actual words verbatim.
- Copying one's own work (called "text re-cycling" or "self-plagiarism") is a grey area.

### What is duplicate submission / publication?

- Submitting to / publishing one's paper in multiple journals
- Such papers are easily detected
- Don't send your paper to a second journal unless it is rejected or you withdraw it

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# How do publishers detect plagiarism and duplicate publication?



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### **Authorship: Do's and don'ts**



#### **General principles for who is listed first:**

#### **First Author:**

- Conducts and/or supervises the data analysis and the proper presentation and interpretation of the results
- Puts paper together and submits the paper to journal

#### Co-Author(s):

- Makes intellectual contributions to the data analysis and contributes to data interpretation
- Reviews each paper draft
- Must be able to present the results, defend the implications and discuss study limitations



#### Abuses to be avoided:

#### **Ghost Authors:**

 Leaving out authors who should be included

#### **Scientific Writers and Gift Authors:**

Including authors when they did not contribute significantly

#### What is a conflict of interest?

Direct financial
 e.g. employment, stock ownership, grants, patents



- Indirect financial
   e.g. honoraria, consultancies, mutual fund ownership, expert testimony
- Career & intellectual e.g. promotion, rivalry
- Institutional
- Personal belief

### Severe consequences for publishing misconduct

Potential consequences can vary according to the severity of the misconduct and the standards set by the journal editors, institutions and funding bodies.

#### Possible actions include:

- Written letters of concern and reprimand
- Article retractions
- Some form of disciplinary action on the part of the researcher's institute or funding body



### Recap – publishing ethics:

Never be tempted

Only submit one article at a time

Acknowledge all authors that should be credited and none that shouldn't

Disclose any conflicts of interest

The potential consequences are severe





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### **Dissemination**



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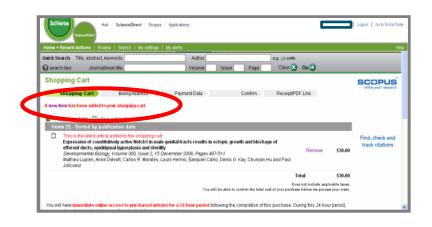
### Journal article production

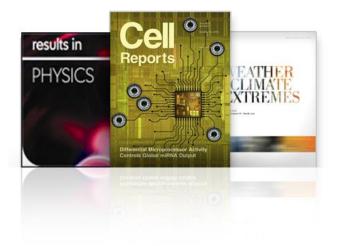
- PreprintAuthor submits manuscript
- Manuscript accepted
- Document proof Copy editing, Author proofing, preparation for publishing
- Published journal article Logo, pagination, branding
- Electronic WarehousePublished as print, HTML or PDF copy

### **Publishing models**

#### **Traditional publishing**

- Authors publish free of charge
- Institutions or individuals subscribe to journals





#### Open access publishing

- Author (or institution/funding agency) pays an article publication fee
- Article is made freely available to all online
- Some journals publish exclusively open access
- Other subscription journals offer open access options

### What is open access?

Free and permanent access to scholarly research combined with clear guidelines (user licenses) for users to re-use the content.

#### Gold open access

- After submission and peer review, an article publishing charge (APC) is payable
- Upon publication everyone can immediately and permanently access the article online

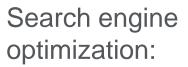
#### Green open access

- After submission and peer review in a subscription journal, the article is published online
- Subscribers have immediate access and the article is made open access either through author self-archiving, publisher deposit or linking.

# How can I make sure my research gets the attention it deserves?



Preparing your article



- Keywords
- Subheadings
- Picture labels



2. Promoting your published article

- Audioslides
- Conferences
- Share links
- Social media
- Social networks



3. Monitoring your article

#### Monitor by:

- Citations
- Views
- Downloads
- Altmetrics

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Get Published – top tips on writing, reviewing and grant writing etc.

Get Noticed – new ways to promote your article and research

Open access – definitions and options

Career Planning Guide – download in 12 languages







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Information about publishing in journals www.elsevier.com/authors

Contact me: l.boudova@elsevier.com

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