



Elettra Sincrotrone Trieste

HOW TO SUCCESSFULLY WRITE AN ACADEMIC PAPER

Fulvio Parmigiani



The credit for the material used in this presentation must be given to

**Jaap van Harten, PhD, Executive Publisher
Elsevier BV, Amsterdam, The Netherlands**

**Professor Martin Brandl
University of Southern Denmark**



**Jörg Eichler
Freie Universität Berlin
Helmholtz-Zentrum Berlin**

Language

DISCORSI
E
DIMOSTRAZIONI
MATEMATICHE,
intorno à due nuoue scienze

Attenenti alla
MECANICA & i MOVIMENTI LOCALI,
del Signor

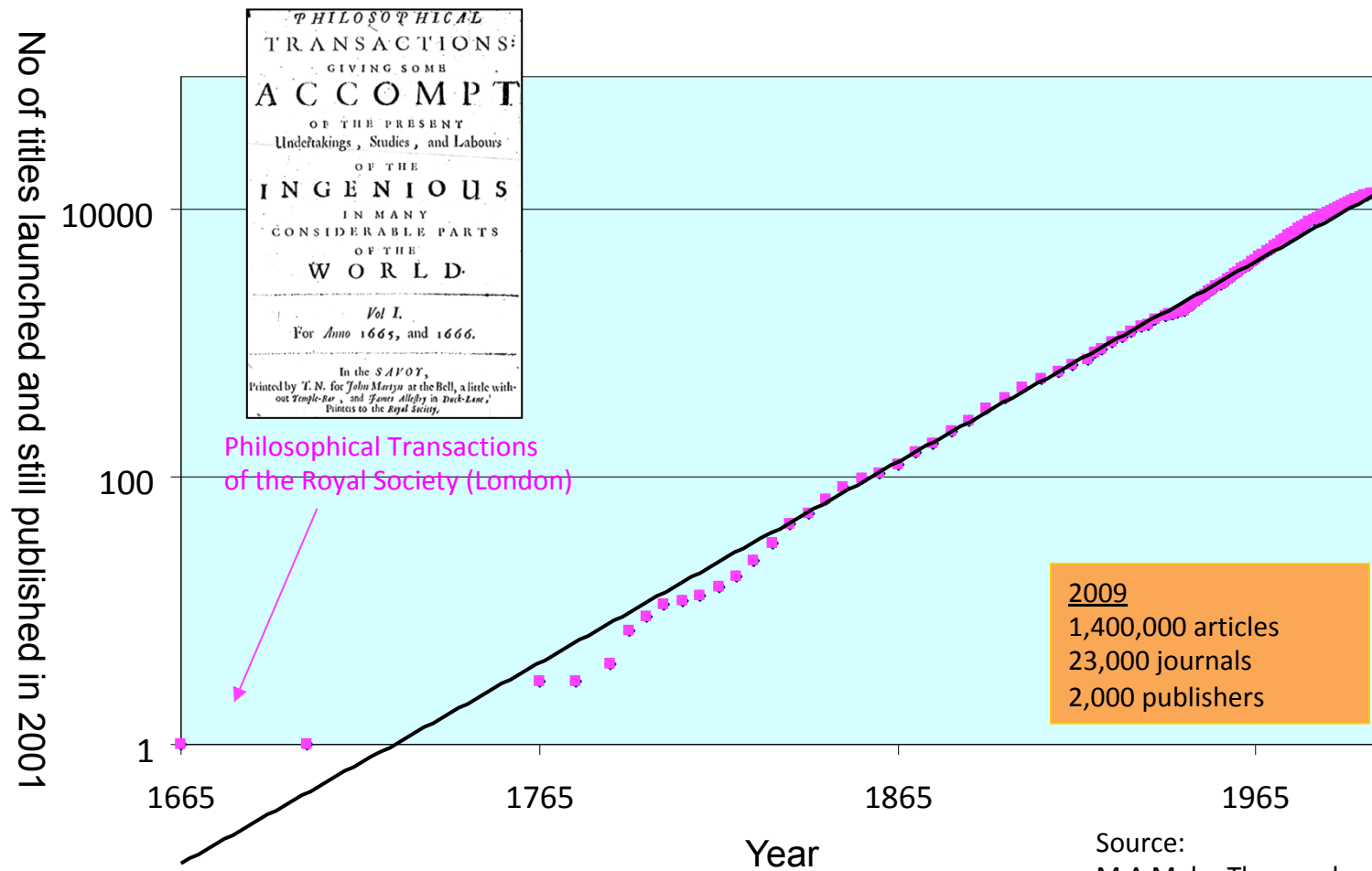
GALILEO GALILEI LINCEO,
Filosofo e Matematico primario del Serenissimo
Grand Duca di Toscana.

Con una Appendice del centro di grauità d'alcuni Solidi.



IN LEIDA,
Appresso gli Elsevirii. M. D. C. XXXVIII.

Peer-Reviewed Journal Growth 1665-2001



Source:
M A Mabe The number and growth of journals
Serials 16(2).191-7, 2003

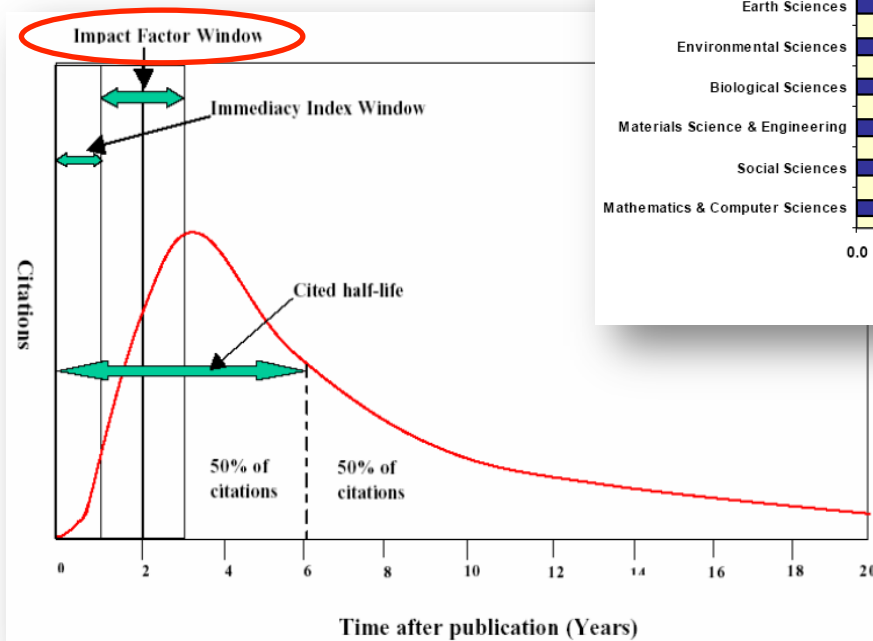
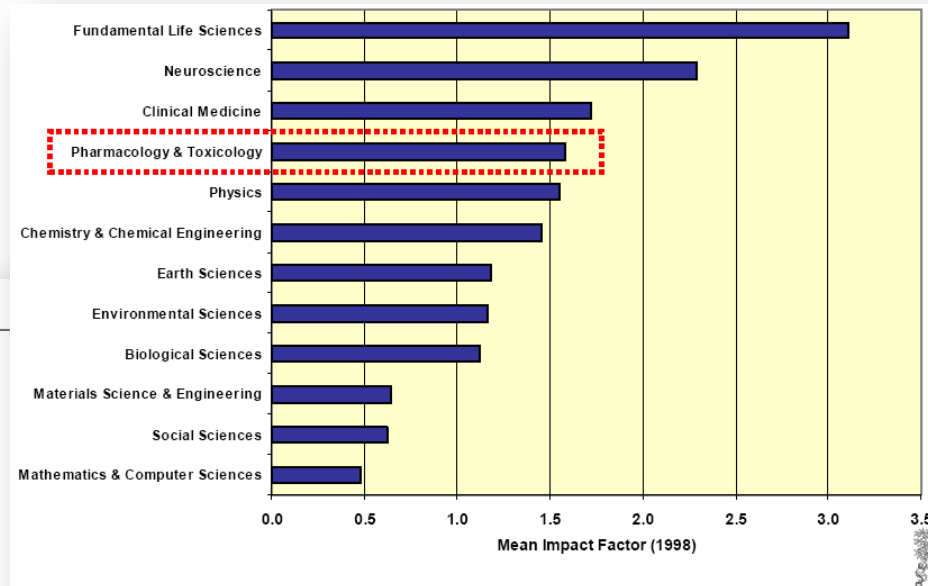
What are *your personal reasons* for publishing?



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

Impact Factor & H-index

“Impact Factor 2011” \approx The average number of times an article published in 2009 or 2010 was cited in 2011



H-index An h-index of 8 tells you that an author published 8 articles that were cited at least 8 times *since publication*

Scientific publishing

Among scientists there is a pressure to publish („or to perish“). This often leads to high submission rates and low quality.

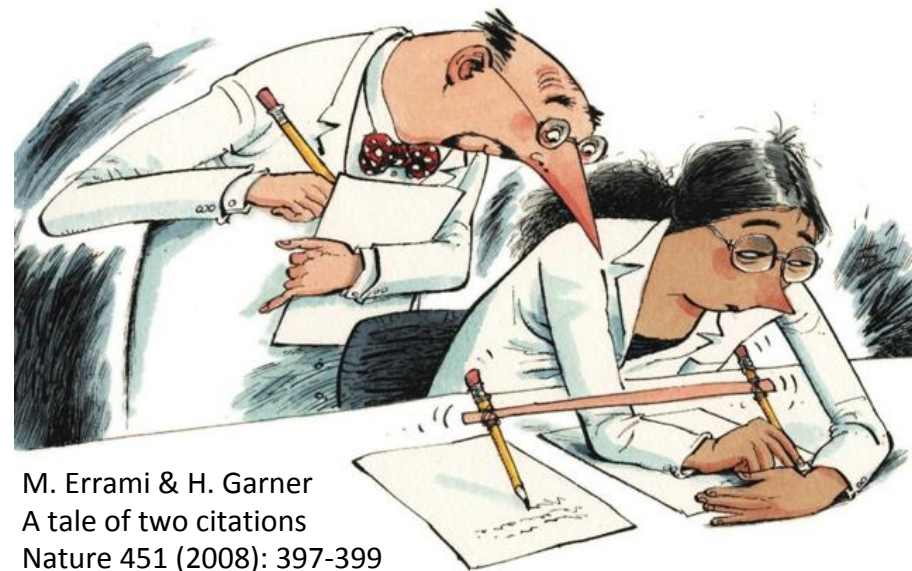
However:

Editors and reviewers are the **most precious resource** of a journal!

- Editors and reviewers are practicing scientists, sometimes leaders in their fields. They are **not professional** journal staff – they do journal work **on top of** their own research, writing and teaching.
- They are busy people who work for journals **to contribute to science**.
- Editors may receive a small payment, but reviewers are **UNPAID**.
- Every manuscript takes up their precious time!

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.
- Ethics problems with scientific articles are on the rise *globally*.



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

Responsibility: Always keep in mind:

- Editors and reviewers invest **time** in considering, analyzing, revising and editing your paper.
- Publishers invest **time and resources** producing, printing and distributing your paper.
- Your institution may spend **funds** for the publication charge required for some journals.

Choose the right journal



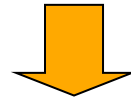
Do not just “descend the stairs”

Top journals

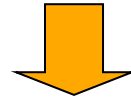
Nature, Science, Lancet, NEJM,



Field-specific top journals



Other field-specific journals



National journals

Decision on the type of manuscript

This has to do with the scientific content and with your goal

- **Letters/Rapid Communications**

published for the early communication of significant and original advances. They carry a higher prestige and sometimes are counted for a promotion. (high rejection rates and high impact factors)

- **Full Articles**

are the basic and most important papers, sometimes they are follow-up papers supplementing Letters.

- **Brief Reports**

usually supplement a preceding full paper for a similar case (carry less prestige and are easier to get accepted)

- **Review Articles**

summarize recent developments in a field (including your own contributions). Mostly upon invitation. Often required or helpful for earning a higher degree (Habilitation).

Documentation of research

Important: Keep always track of your measurements/calculations

- Keep a **diary with numbered pages**, so that you can always refer to a specific result (or failure).
- Specify as clearly as possible your **starting point and assumptions**
- From time to time **summarize** in writing what you have found so far and what will be the next steps. Refer to the pages where the results are stated.
- From the outset, **write your personal notes in English**. This establishes the contact with the previously published literature and is a pre-stage of the final paper.
- **Try to think in English** (within science) thus **avoiding a translation** into English when you write the paper.

Why Is Language Important?

Save editors 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 they can't *submit garbage* 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.”

Preparation of the manuscript

- **Decide on the type of manuscript.**
Regular papers are usually organized in sections,
Letters, Rapid Communications mostly do not display their structure,
but the structure should exist.
- **Read the „Guidelines for Authors“ of the target journal**
before writing the first draft (text layout, citations, nomenclature etc.).
- **Collect the material you wish to present**
and bring it into some order (formulas, figures, tables etc.).
- **Track the latest results relevant to your paper,**
so that you do not miss important citations or competing papers.

Read the 'Guide for Authors'!

- Stick to the Guide for Authors in your manuscript, *even in the first draft* (text layout, nomenclature, figures & tables, references etc.). 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.

Guide for Authors

Author Information Pack Printer-friendly

INTRODUCTION

- Types of paper

BEFORE YOU BEGIN

- Ethics in publishing
- Conflict of interest
- Submission declaration
- Changes to authorship
- Copyright
- Retained author rights
- Role of the funding source
- Funding body agreements and policies
- Open access
- Language and language services

PREPARATION

- Use of wordprocessing software
- Article structure
- Discussion
- Conclusions
- Essential title page information
- Abstract
- Keywords
- Abbreviations
- Acknowledgements
- Nomenclature and Units
- Database linking
- Math formulae
- Footnotes

- Tables
- References
- Reference Style
- Video data
- Supplementary data
- Submission checklist

AFTER ACCEPTANCE

- Use of the Digital Object Identifier
- Proofs
- Offprints

AUTHOR INQUIRIES

Additional Information

- Editorial Board

Readers

- ↳ Access Full-Text
- ↳ Volume/Issue Alert

Authors

- ↳ Submit an Article
- ↳ Track Your Accepted Articles
- Guide for Authors**
- Author Information Pack
- ↳ Webshop

Librarians

- Ordering Information

Actions

- Submit Article
- Order Journal
- Recommend to Friend
- Bookmark this Page
- Subscribe to RSS feed

Facts & Figures

ISSN: 0014-2999
Imprint: ELSEVIER

Cover letter

Your chance to speak to the Editor directly

- View it as a job application letter
 - You want to give your work the best possible shot
- WHY did you submit the manuscript to *THIS* journal?
 - Do not summarize your manuscript, or repeat the abstract
- Suggest suitable reviewers
 - Not from your own inner circle
 - You can also mention who should not review your paper, and why
- Mention special requirements
 - e.g. if (and why!) you do not wish your manuscript to be reviewed by certain reviewers.
- Mention and explain conflicts of interest, if applicable

General Structure of a Research Article



- Title
 - Abstract
 - Keywords
-
- Main text (IMRAD)
 - Introduction
 - Methods
 - Results
 - And
 - Discussions
-
- Conclusions
 - Acknowledgements
 - References
 - Supplementary Data

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

Journal space is not unlimited.

Make your article as concise as possible.

Construction of the article

- Title
- Authors
- Abstract
- Keywords

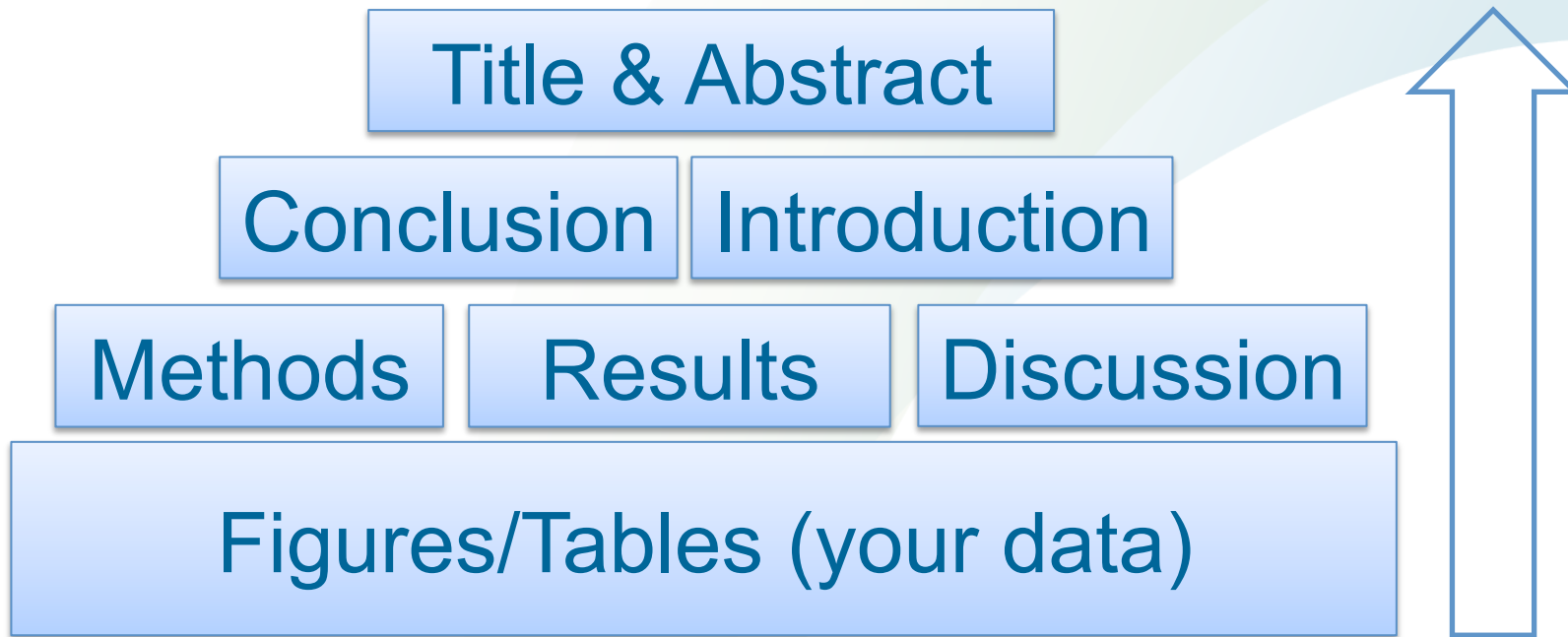
**Make them easy for indexing and searching!
(informative, attractive, effective)**

- **Main text**
 - Introduction
 - Methods
 - Results
 - Discussion (Conclusions)

Journal space is precious. Make your article as brief as possible. If clarity can be achieved in *n* words, never use *n+1*.

- Acknowledgements
- References
- Supplementary material (appendices)

The Process of Writing – Building the Article





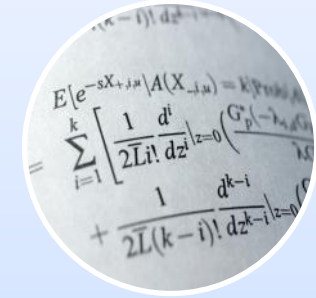
Fewest possible words



Adequately describes content



Identifies main issue



Does not use rarely-used abbreviations



Effective manuscript titles

Keywords



Are used by indexing and abstracting services



Are the labels of the manuscript



Use only established abbreviations (e.g. DNA)

Article Title

“An experimental study on evacuated tube solar collector using supercritical CO₂”

Keywords

Solar collector;
supercritical CO₂; solar energy; solar thermal utilization

Abstract



This is the advertisement of your article.
Make it interesting and understandable



Make it accurate and specific



A clear abstract will strongly influence
whether or not your work is considered



Keep it as brief as possible

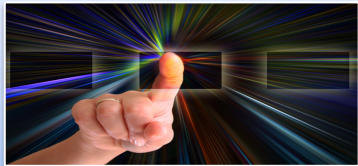
Introduction



Provide a brief context to the readers



Address the problem



Identify the solutions & limitations



What is hoped to be achieved



Consistent with the nature of the journal

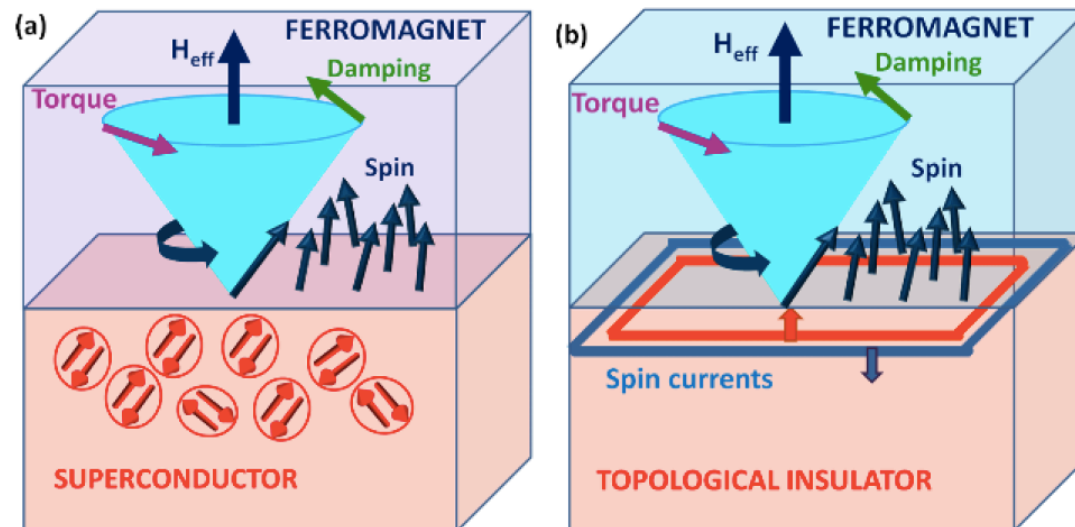
Methods

Describe how the problem was studied

Include detailed information

Do not describe previously published procedures

Identify the equipment and describe materials used



Results

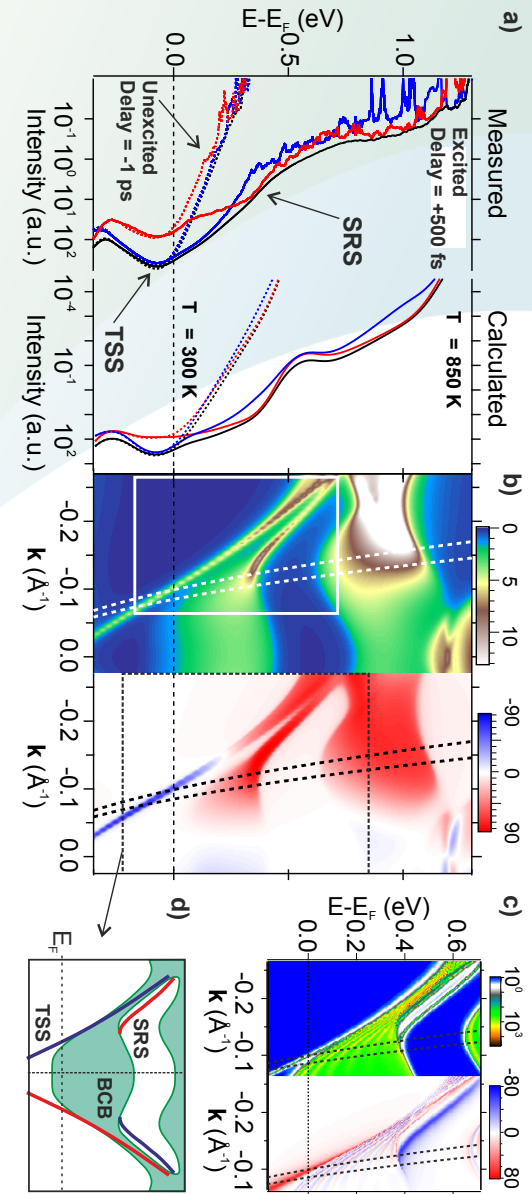
Be clear & easy to understand

Highlight the main findings

Feature unexpected findings

Provide statistical analysis

Include illustrations & figures



Discussion

What do the results mean?

Most important section

Make the discussion correspond to
the results

You need to compare published
results with your own



The Conclusion

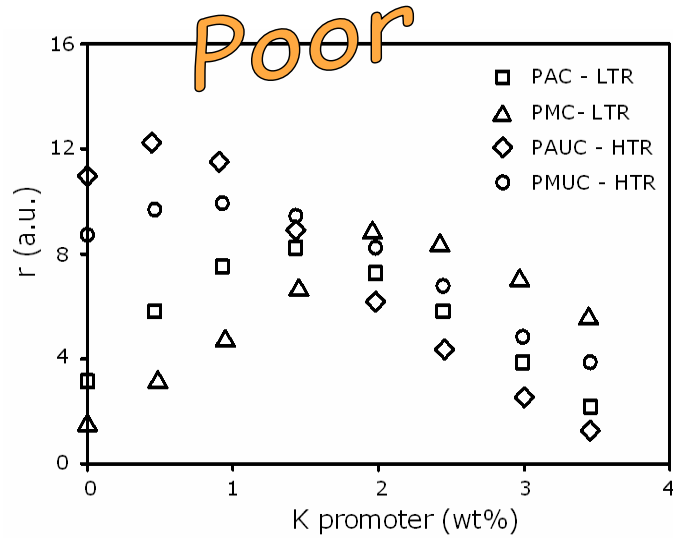
Should be clear

Provide justification for the work

Advance the present state of knowledge

Provide suggested future experiments

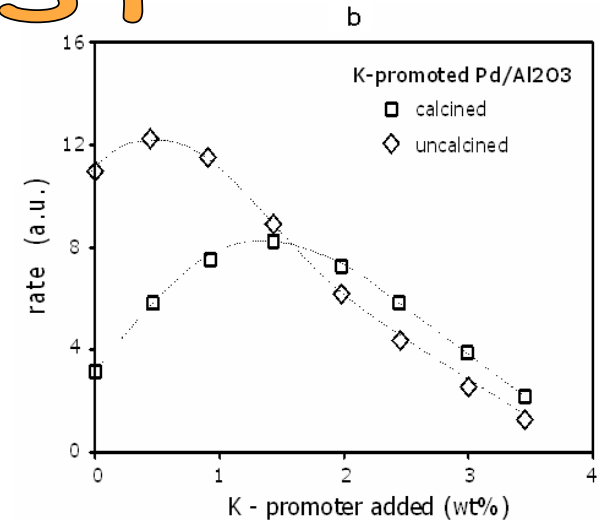
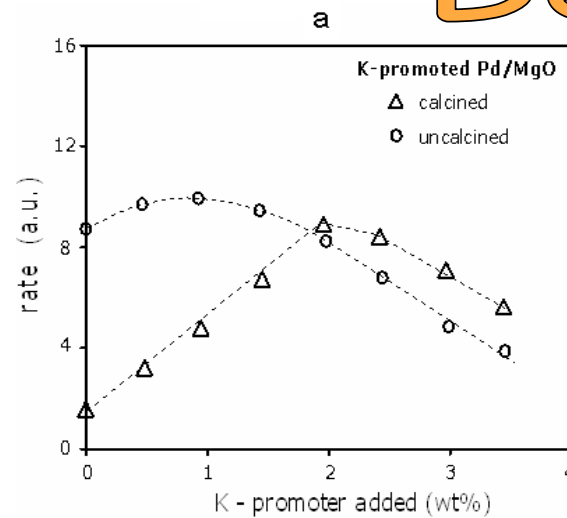
Graphics



- Legend is poorly defined
- Graph contains too much data
- No trend lines

Graphics

Best



- Legend is clear
- Data is better organized
- Trend lines are present



Advisors



Financial
Supporters &
Funders



Proofreaders &
Typists



Suppliers who
may have
donated
materials



References

Do not use too many references

Always ensure you have fully absorbed material you are referencing

Avoid excessive self-citations

Avoid excessive citations of publications from the same region

Conform strictly to the style given in the guide for authors



Authors

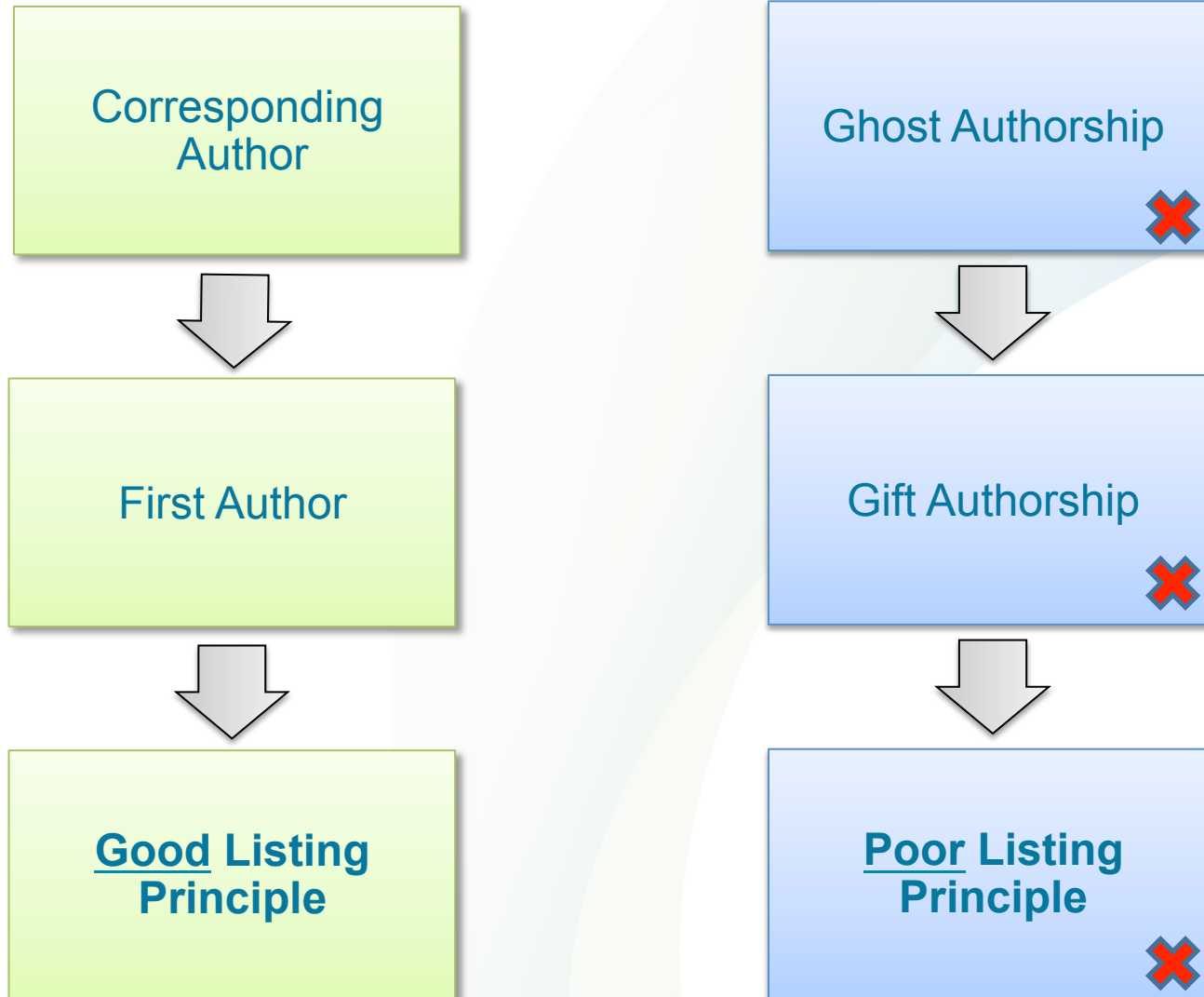
Authorship credit should be based on

- substantial contributions to conception and design, or acquisition of data, or analysis and interpretation of data;
- drafting the article or revising it critically for important intellectual content;
- final approval of the version to be published.

Authors should meet all three conditions.

Those who have participated in certain substantive aspects of the research project should be acknowledged or listed as contributors.

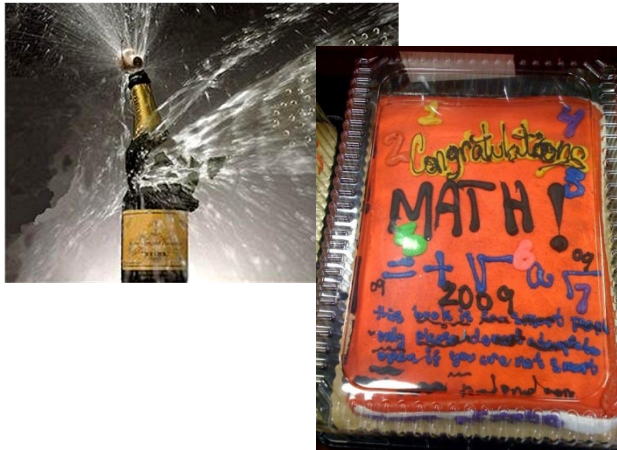
Authorship



First Decision: “Accepted” or “Rejected”

Accepted

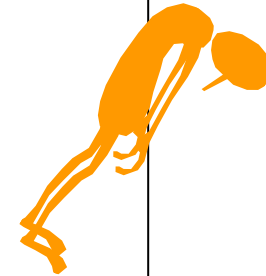
- Very rare, but it happens



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

Rejected

- Probability 40-90% ...
- Do not despair
 - It happens to everybody
- Try to understand WHY
 - Consider reviewers' advice
 - Be self-critical
- If you submit to another journal, begin as if it were a new manuscript
 - Take advantage of the reviewers' comments. *They may review your (resubmitted) manuscript again!*
 - Read the Guide for Authors of the new journal, again and again.



First Decision: “Major” or “Minor” Revisions

Minor revision

- Basically, the manuscript is worth to be published
- Some elements in the manuscript must be clarified, restructured, shortened (often) or expanded (rarely)
- Textual adaptations
- “Minor revision” does NOT guarantee acceptance after revision!

Major revision

- The manuscript may finally be published in the journal
- Significant deficiencies must be corrected before acceptance
- Usually involves (significant) textual modifications and/or additional experiments

Manuscript Revision

Prepare a detailed Response Letter

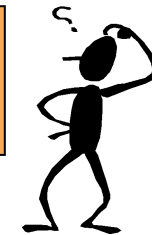
- Copy-paste each reviewer comment, and type your response below it
- State specifically which changes you made to the manuscript
 - Include page/line numbers
 - No general statements like “Comment accepted, and Discussion changed accordingly.”
- Provide a scientific response to comments to accept,
- or a convincing, solid and polite rebuttal when you feel the reviewer was wrong.
- Write in such a manner, that your response can be forwarded to the reviewer without prior editing

Do not do yourself a disfavours, but cherish your work

- You spent weeks and months in the lab or the library to do the research
- It took you weeks to write the manuscript



*Why then run the risk of avoidable rejection
by not taking manuscript revision serious?*



Thank you!
Questions welcome

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www.elsevier.com/trainingwebcasts



*How to Write a Paper in Scientific
Journal Style and Format*



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<http://abacus.bates.edu/~ganderso/biology/resources/writing/HTWtoc.html>