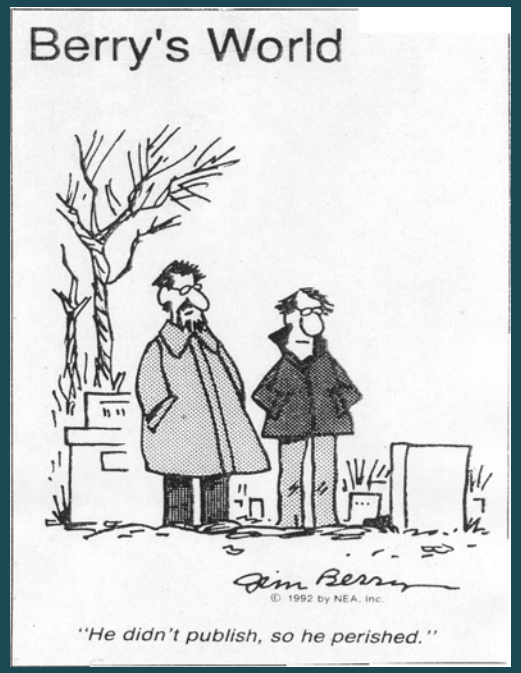
Researcher Academy

ELSEVIER

# Writing scientific articles, and trends in scientific publishing

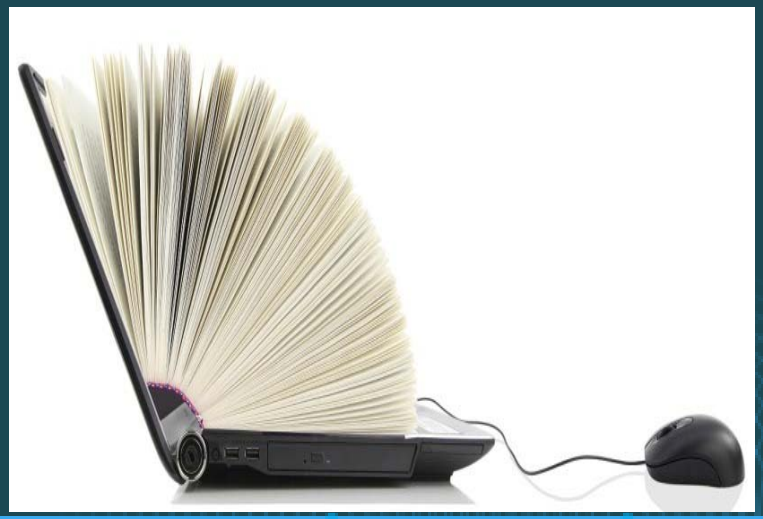
## What are editors, reviewers and publishers looking for?




Andrew Thompson and Dale Seaton

Researcher Academy
On Campus

# Trends in publishing



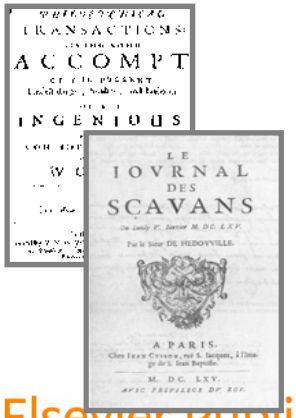
# The Publishing Industry over Time

Henry Oldenburg

Tim Berners-Lee

**WWW project CERN**

1580 — 1665 — 1880 — 1989 — 1998-1999 — 2000 — Today




Google

BLOG

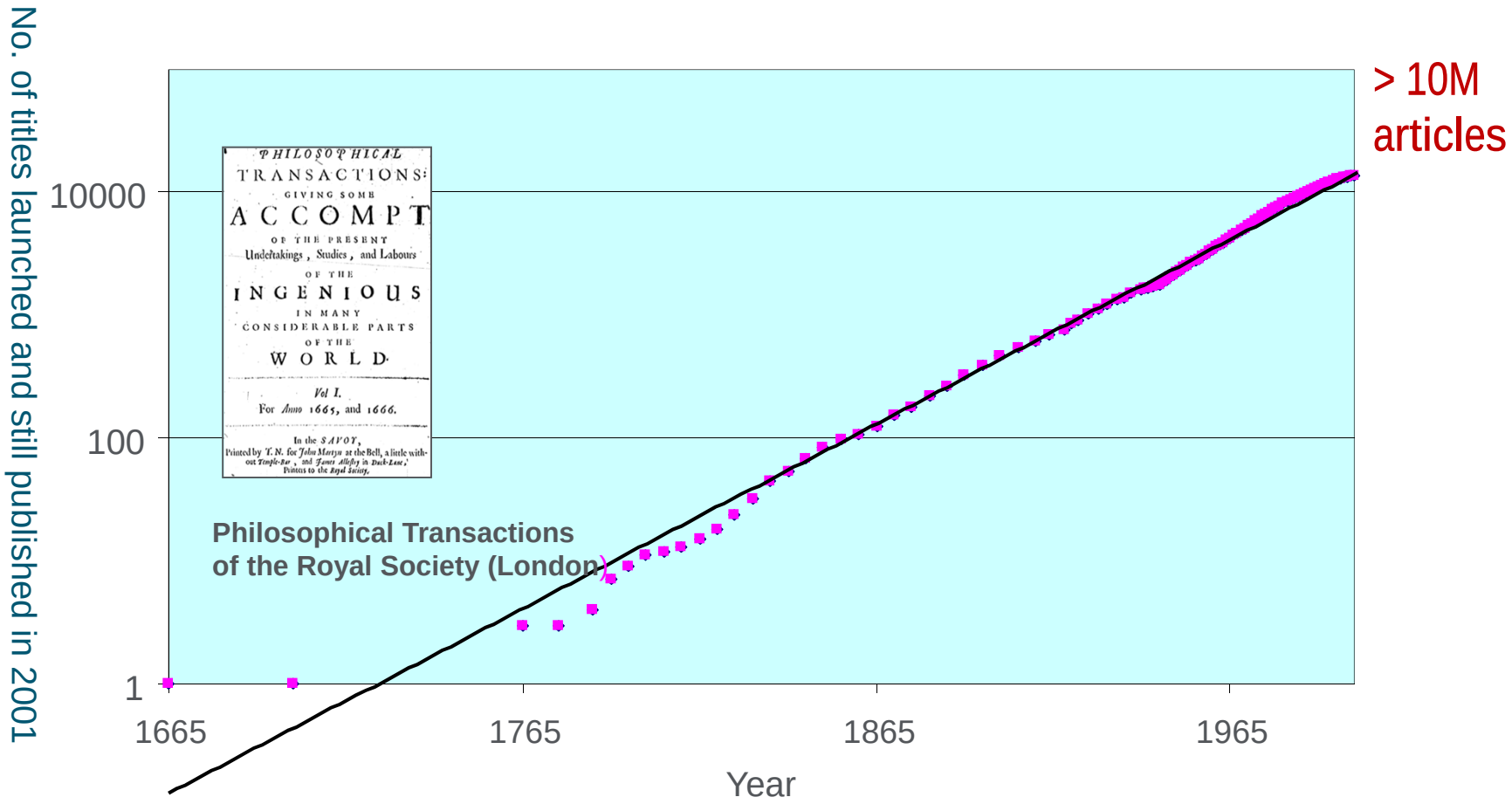
WIKIPEDIA
The Free Encyclopedia

open access

Elsevier Publishing Campus

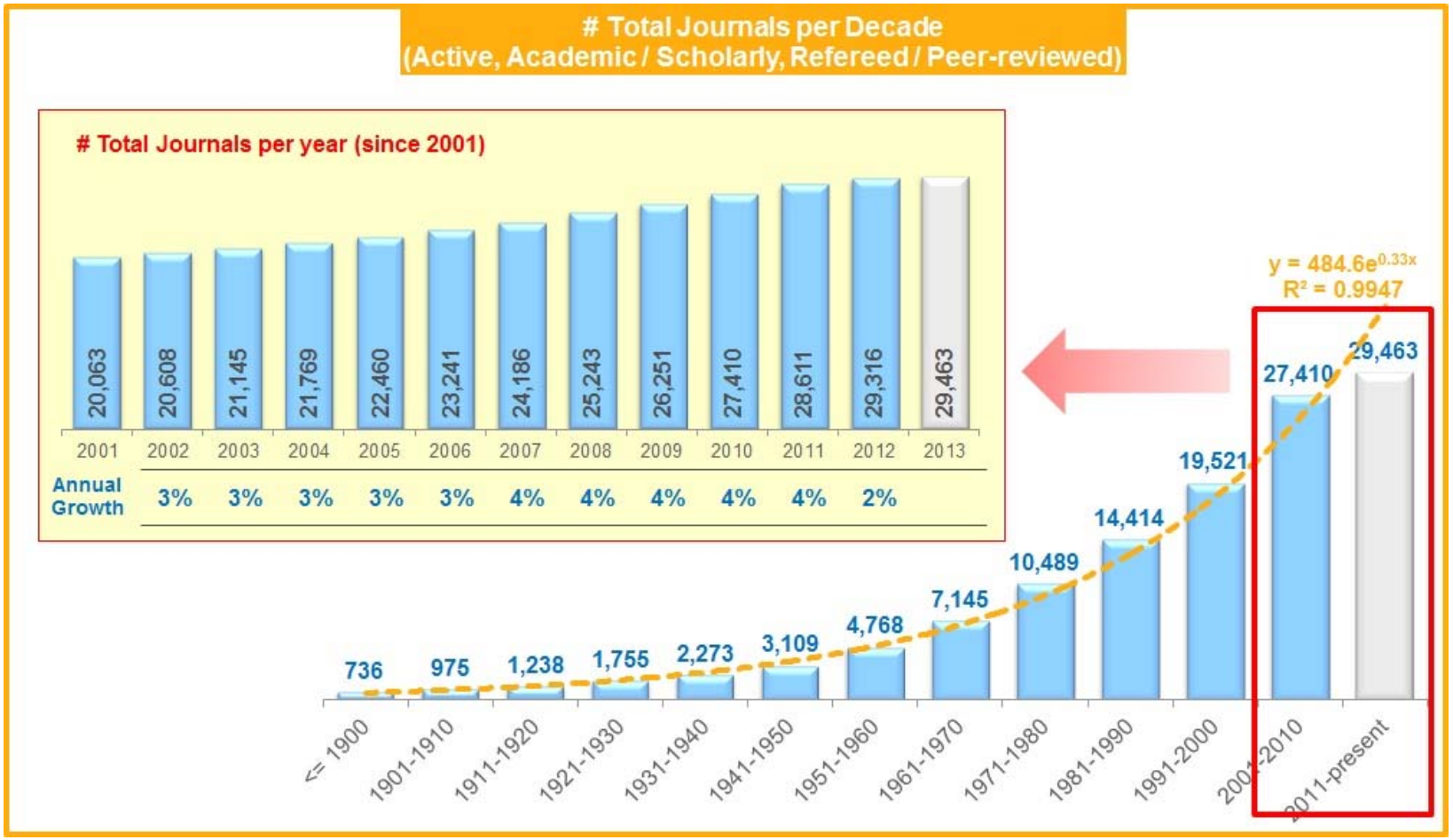
Publishing Connect

# Peer-reviewed journal growth 1665-2001



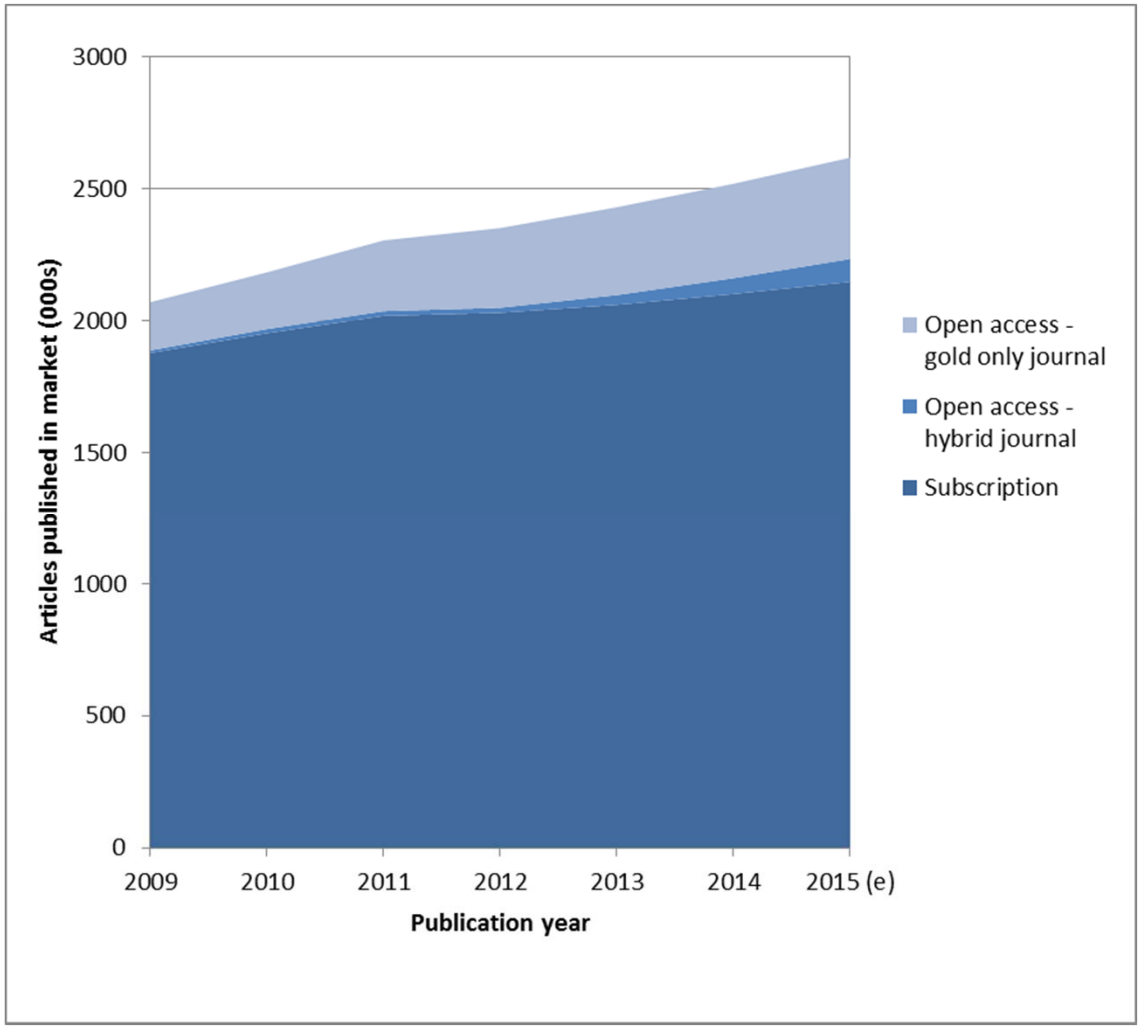

Source:
M A Mabe The number and growth of journals, *Serials* 16(2). 191-7, 2003

# Peer-reviewed journal growth 1990-2013



# Journal article growth

In 2015 there were an estimated 2.1 million subscription and almost 0.5 million open access articles published worldwide.




## Subscription content

- 82% share of total articles in 2015

## Open access content

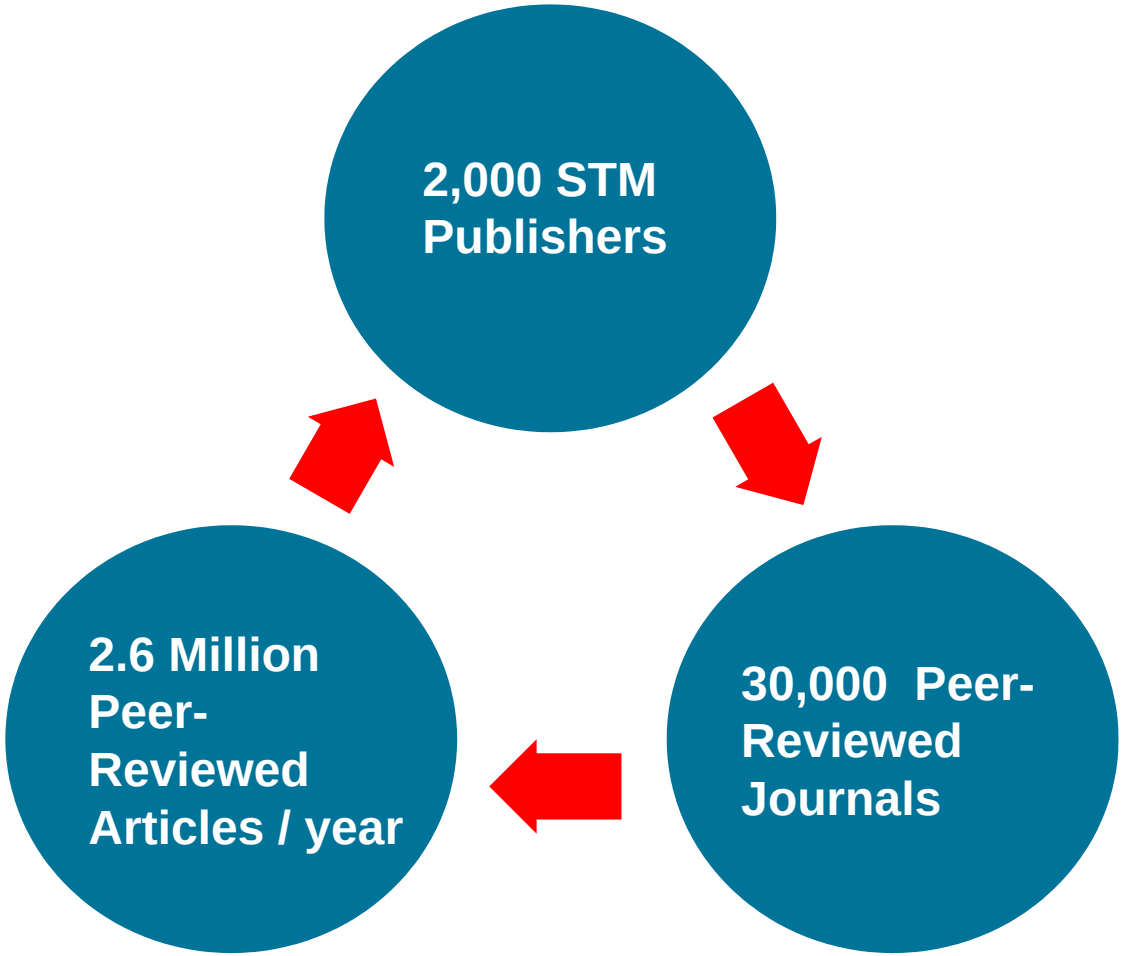
- Fully-paid-for open access articles is 13% share of total content in 2015
- All open access, including subsidized articles, is 18% share of total content.

## Impact on researchers

- The volume of research articles is continuing to grow
- For most researchers, it's a real challenge to keep up with the literature
- Researchers need to make sure their research doesn't fall through the cracks!

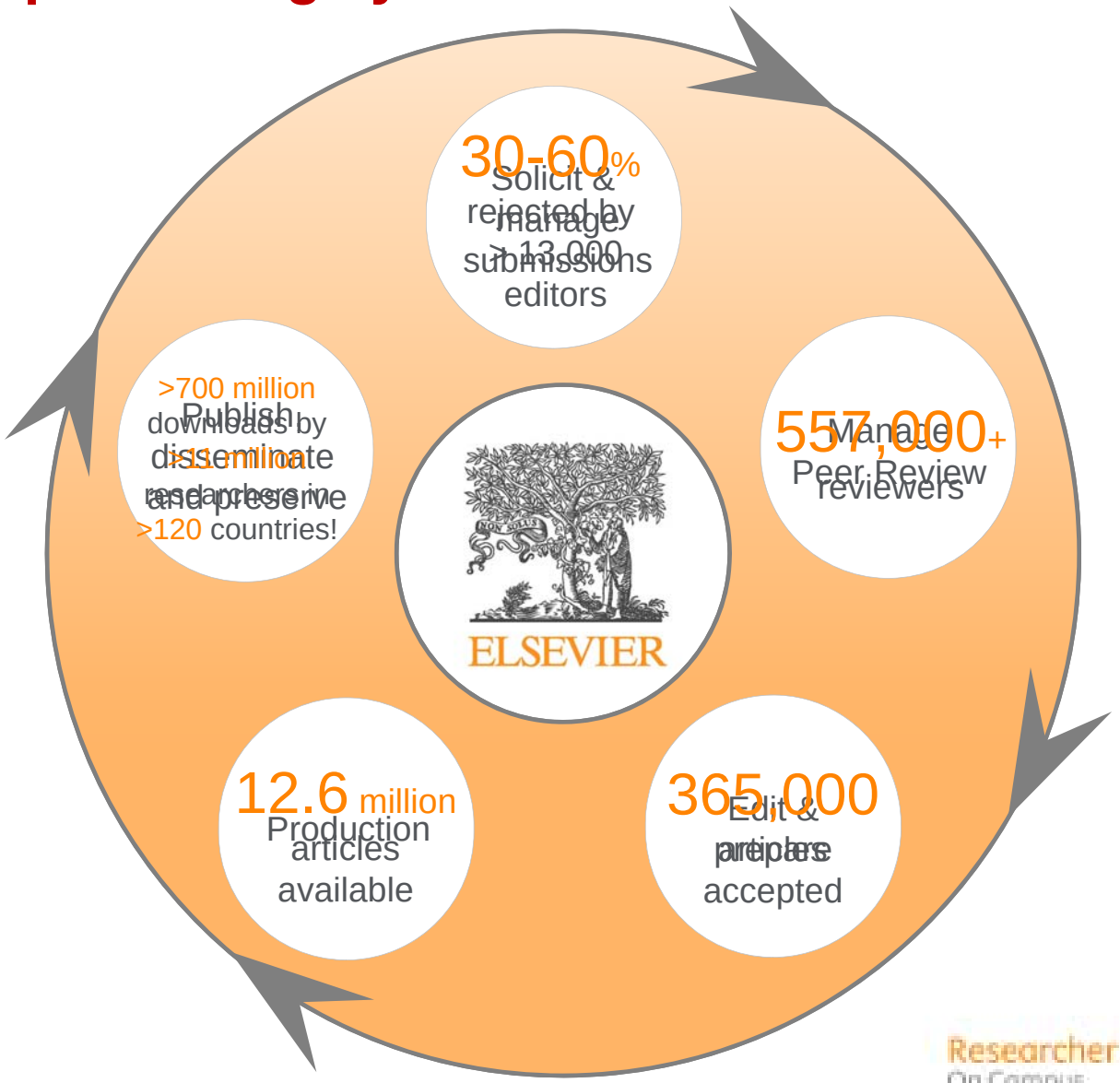
# Journal publishing today

- Scientific, technical and medical (STM) publishing



# What do publishers do

# The journal publishing cycle



# Role of scientific publications

- **Registration**
  - The timestamp to officially note who submitted scientific results first
- **Certification**
  - Perform peer-review to ensure the validity and integrity of submissions
- **Dissemination**
  - Provide a medium for discoveries and findings to be shared
- **Preservation**
  - Preserving the minutes and record of science for posterity
- **Use**
  - Easier to monitor in the digital environment

**Journal publishing has thrived for over 340 years but**

**the fundamental role of Publishers remains unchanged**

# Choosing a journal

# Selecting the right journal – consider journal metrics

## 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.

## Other bibliometric indicators

- SCImago Journal Rank (SJR), Source Normalized Impact per Paper (SNIP), Field Weighted Citation Impact (FWCI), **CiteScore**, etc.

## Coverage in Abstracting & Indexing databases

- Scopus, Medline, ChemAbstracts, INSPEC, etc.

***Thompson Reuters recently sold the impact factor section of their company to Clarivate**

# Do not just descend the Impact Factor ladder

Top journals, *Nature, Science, Lancet, Cell*…

↓

Field-specific top journals

↓

Other field-specific journals

↓

National journals

# It is not (only) the Impact Factor, it is (mainly) the right audience!

Consult the Journal homepage to learn:

- Aims and scope
- Accepted types of articles
- Readership
- Current hot topics

Go through the abstracts of recent publications

Articles in your references will likely lead you to the right journal.

**DO NOT gamble by submitting your manuscript to more than one journal at a time**

# What should I look for in a journal?

- A journal that is read by colleagues that work in the same field. Is it reaching your community?
- A journal that has the highest impact for that particular field (not necessarily the highest IF!)
- A journal that has fast turnaround times (see journal metrics)
- A journal that is easy to find on the web

# Where to publish?

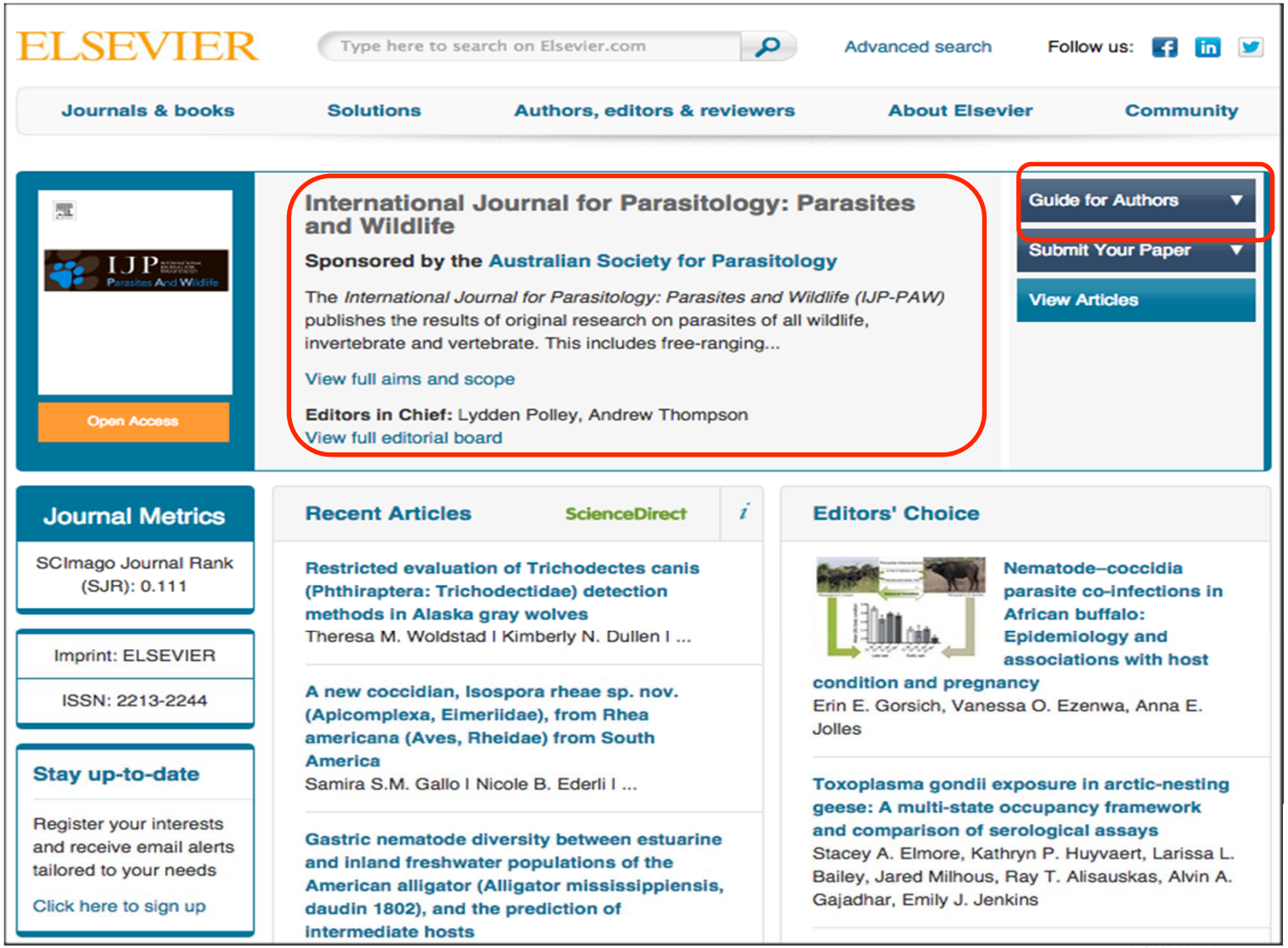
- Ask help from your supervisor or colleagues
- Your supervisor (who is sometimes the corresponding author) has at least co-responsibility for your work. You are encouraged to chase your supervisor if necessary.
- Your colleagues may already have experience of the journal (or the Editor!)

# Tips and tools for…
# Selecting the right journal

Which journals do you cite and read?

- Aim to reach the intended audience for your work
- Choose only one journal, as simultaneous submissions **are prohibited**
- Supervisor and colleagues can provide good suggestions
- Shortlist a handful of candidate journals, and investigate them:
  - Aims and scope
  - Scan recent tables of contents
  - Readership
  - Current hot topics

# Consult the Journal Homepage



# Selecting the right journal - Beware of predatory journals!


http://thinkchecksubmit.org/

https://predatoryjournals.com/about/
lists over 1250 predatory publishers!
There are over 10,000 predatory journals.

- **Open Access journals should be on:** Directory of Open Access Journals (DOAJ): https://doaj.org/

# Ready to Write

# First a simple truth

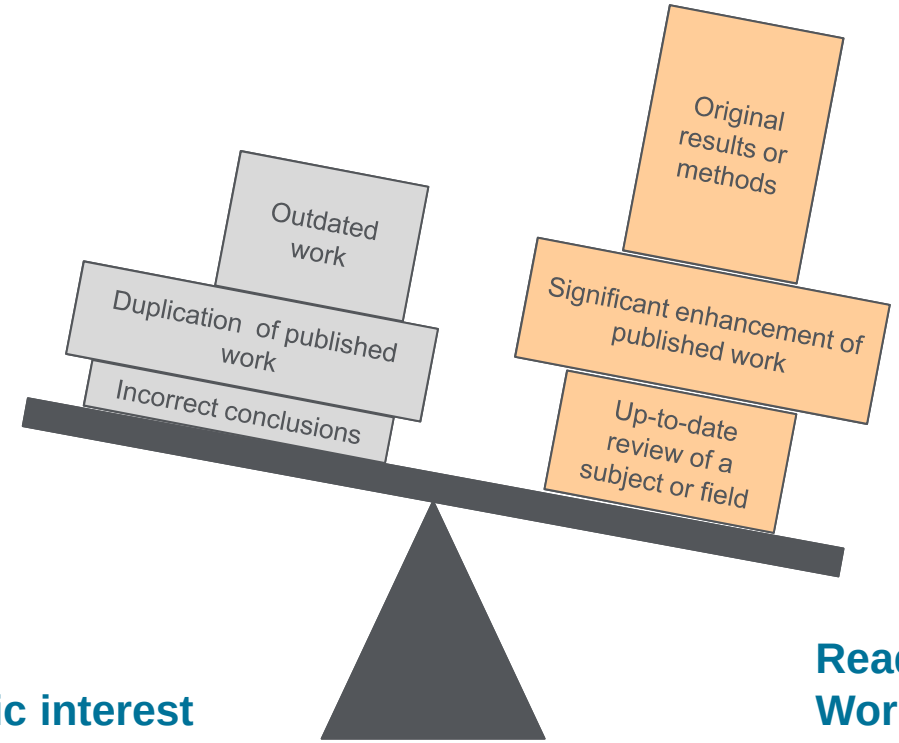
- No matter how fascinating your experimental results or how intriguing your clinical observations, your work must be published if it's going to impact science and advance the field

- Even if your discovery is brilliant, bad writing can render your findings unpublishable or delay publication until it is extensively revised

- "It's not science until it's published!"

# Tips and tools for… Planning and preparing your article

## Are you ready to publish?

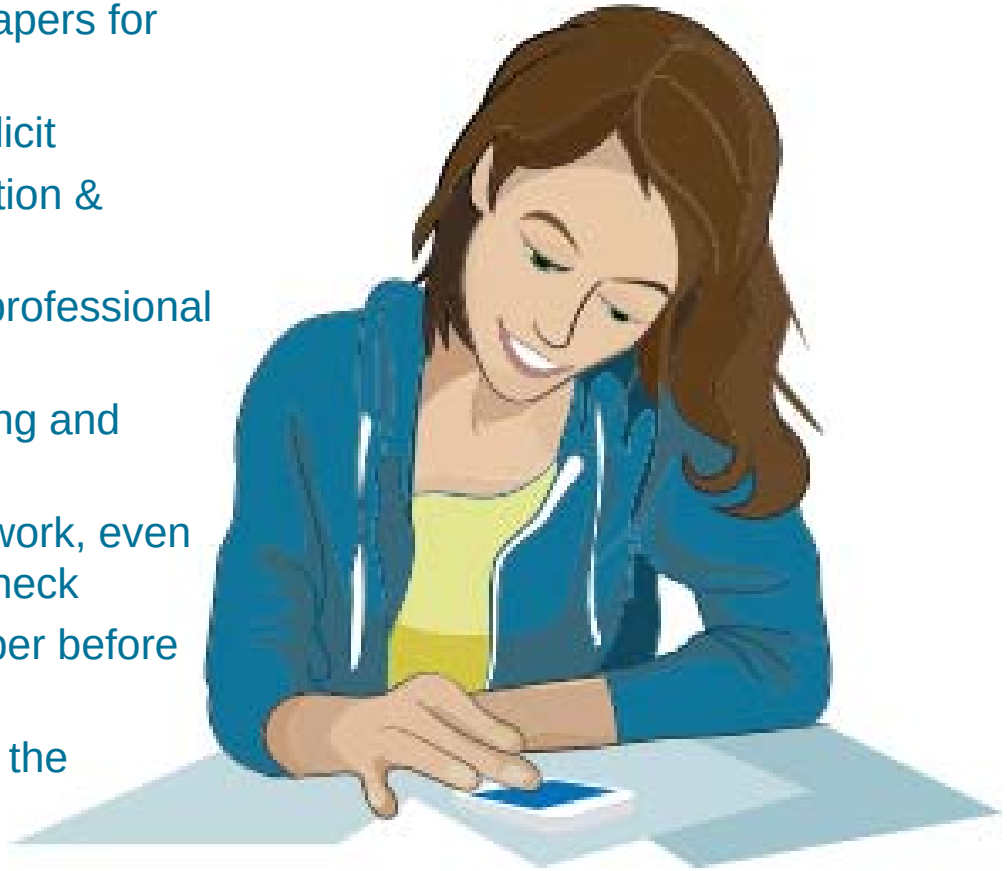



**Not ready**
**Work has no scientific interest**

**Ready**
**Work advances the field**

# Tips and tools for… Preparing your article

- Check guide for authors and other papers for style and structure
- Title - make subject and method explicit
- Spend time on abstract and introduction & conclusions
- Use easy to understand charts and professional illustrations
- Use clear language and check spelling and grammar
- Do not cut and paste from previous work, even a thesis. If possible, do a similarity check
- Have another person check your paper before you submit it
- Make it clear what the paper adds to the literature and why it is important



# Do publishers correct language?

- **No**. It is the **author's responsibility** to make sure their paper is in its best possible form when submitted for publication – Reviewers and Editors don't do it!

- Publishers often provide resources for authors.
  - § Some publishers may perform technical screening prior to peer review.
  - § http://webshop.elsevier.com/languageservices

# A Good Manuscript….

- Contains a scientific message that is novel, clear, useful, relevant and exciting.
- Conveys the authors' thoughts in a logical manner such that the reader arrives at the same conclusions as the author.
- Makes the editor feel like (s)he has learnt something useful!
- Is well-organized and focused, and best of all, NOT TOO LONG.

# Manuscript Language – Overview

Accurate

Concise

Clear

Objective

# Sentence Structure

Write direct and short sentences

One piece of information per sentence

Avoid multiple statements in one sentence

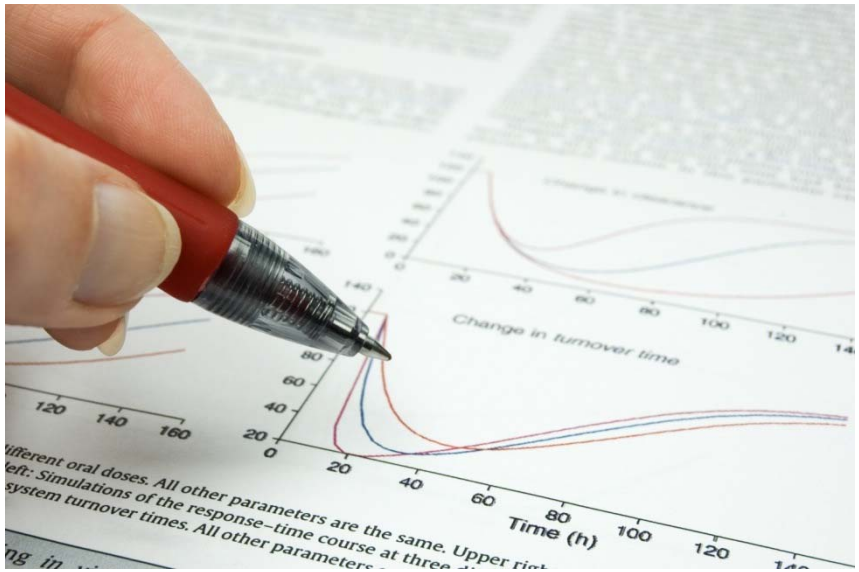
Tip:

Read your manuscript out loud when proofreading.
You will pick up on more errors and run-on sentences.

# Tenses

*Present tense:*
for known facts
& hypotheses

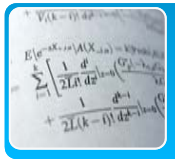
*Past tense:*
for experiments
conducted & your
results



# Grammar

Use active voice to shorten sentences

Avoid abbreviations



Minimize use of adverbs


Eliminate redundant phrases

Double-check unfamiliar words or phrases

# Questions

What are some characteristics of the best manuscript writing you have seen?

What is it that distinguishes a very good manuscript from a bad one?

# What makes up a strong manuscript

Has a clear, useful, and exciting message

Presented and constructed in a logical manner

Reviewers and editors can *easily* grasp the significance

**Make it easy on the editor and reviewers to understand your story**

# Abstract

**The abstract should just be one paragraph :**

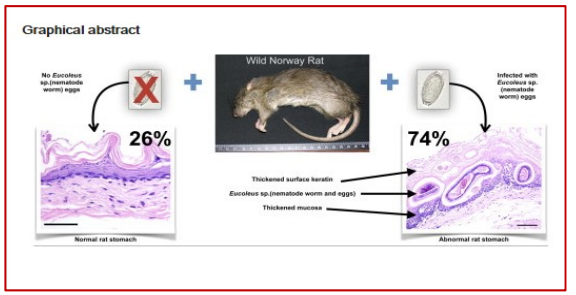
**What has been done & what are the main findings.**

The abstract is the **advertisement** for your article and is freely available in PubMed, Medline, Embase, SciVerse Scopus, etc.

Most important section of the article — It will be read by the most people

It should include important data (sample size, statistics) and results

It is often best to write abstract last




Some journals now also ask for a graphical abstract.

# Introduction

Introduction is especially important!
A high proportion of “lack of novelty” rejections are made after reading abstract, introduction and conclusions.

- You are telling a story. The Introduction sets the scene.
- What was the purpose of this work?
- State the reason you did the study as clearly as possible.
- Do not attempt to summarize the whole field (it is not possible!)
- Quote what is necessary for background and give credit to previous works
  **[Reviewer could have written a seminal article in the past!].**

# Introduction (Continued)

- Give a clear **motivation** for the work. Explain why before explaining how.
- Explain what is **novel** compared to what is already available in the literature
- High level description of your approach. Why is it ***important***? Why is it ***difficult***?
- What are the ***alternatives***? Why is yours **different** or **better**?
- What are the gaps and how are you going to fill them? At the end of the introduction the reader knows the problem and maybe the solution/approach you propose

# Methods

***Describe how the problem was studied***

- Often the easiest place to start writing the papers
- Describe how the research was done
- Methods or procedures used, study population and demographics (if needed)
- Give enough detail for critique and replication of procedures and confirmation of results
- When using methods that have been published before, reference the publication without repeating the description – *but merely citing a previous article may not be sufficient*
- Identify the equipment and materials used
- Describe as objectively as possible, in simple terms
- Manufacturer name and location should be cited with brand name product or source of cells
- Describe the statistical methods used
- Be specific when citing computer programs
- Must state receipt of informed consent for studies using human subjects or materials
- Ethics permit details

# Results

- Describe your findings in a logical sequence
- Should parallel your Methods section
- Provide some structure with subheadings – if necessary
- Don’t repeat what you’ve already stated
- Emphasis is on the observations of your research -- *NOT* the implications
- Check *and recheck* your data for accuracy and consistency — make sure the numbers add up!
- Results of the statistical analyses
- Figures and tables
- Can often be one of the shortest sections of your paper

# Results: figures and tables

- Illustrations are critical because Figures and tables are the most efficient way to present results. They should be used for ESSENTIAL data only
- Don’t repeat what is in the text – should be complementary
- Captions and legends should be self-explanatory; figures should be able to stand alone. *What is the take home message?*
- Maximize space; make sure final versions of figures can be easily read
- Use colour – **take advantage since on-line**
- Use consistent formatting between figures
  - Plots: labels, scale and symbols
  - Micrographs: scale bar, point out key features

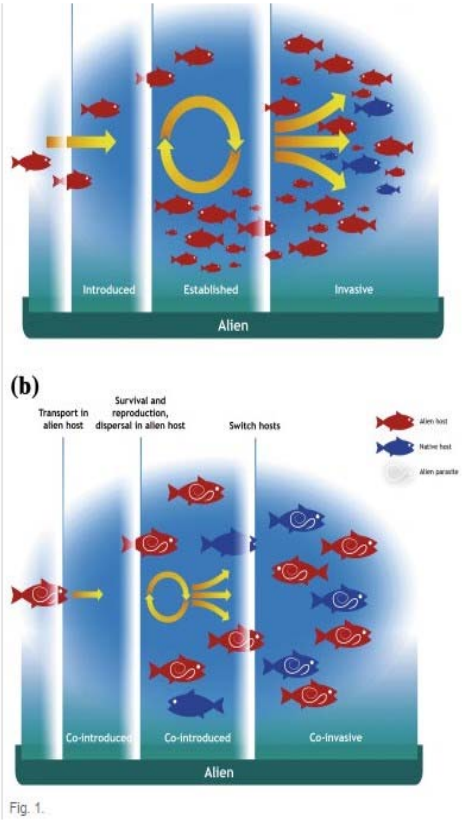
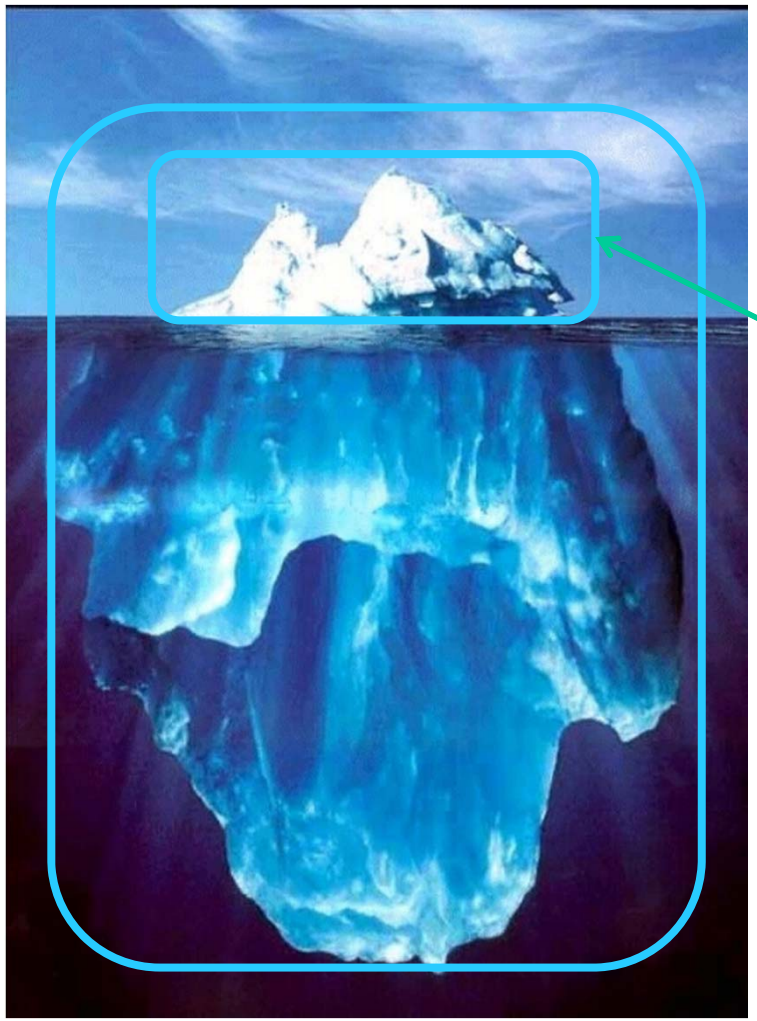


Fig. 1.

# Results



***Do not try to fit everything in!***

**But this is what should end up in the paper**

**This may be your total work..**

# Discussion

**The Discussion is where you interpret what your results mean. Provide *critical appraisal*. This is the most important section of the article.**

- Does not require complete review of the literature but should place the study in context for the reader – *but don't repeat what is in the Introduction.*
- Why are your findings new and different?
- How are they relevant? Can you identify a mechanism to explain your results or hypothesis?

Include:

- Interpretation of results taking into account any sources of bias or imprecision
- Context of results with current evidence and in relation to the purpose of your study.

# Discussion continued

**It is where you have the chance to *sell your data*!**
**Many papers are rejected because the discussion is too weak - *You don't want the reader to think .. "Ok so what?"***

Be careful ***not to use*** the following:

- Statements that go beyond what the results can support
- Unspecific expressions such as "higher temperature" or "at a lower rate"; do use **quantitative descriptions** – true also for the Results section
- Sudden introductions of new terms not mentioned previously in your paper
- Speculations on possible interpretations are allowed. But these should be rooted in fact, rather than imagination.

# Conclusions

**How the work advances the field from the present state of knowledge**

- Not the same as a summary!
- Give conclusions that are supported by your results
- Try to end in a positive tone
- Do not overreach:
  Statements such as "*this method can potentially be used…*" do not belong to the conclusions (and often irritate referees).

# References

**Cite the main scientific publications on which your work is based**

Do not use too many references - ***but don't be lazy and only cite most recent reviews***

Always ensure you have fully absorbed material you are referencing

Avoid excessive Self-Citation

Avoid excessive citations of publications from the same region

Conform strictly to the style given in the guide for authors

# Acknowledgments

**Ensures that those who helped in the research are recognized**


Advisors and Undergrad. Support

Financial Supporters and Funding Bodies

Proofreaders and graphic artists

Suppliers who may have donated materials

# Authorship

- Policies regarding authorship can vary.
- One example: the International Committee of Medical Journal Editors ("Vancouver Group") declared that an author must:
  - *substantially contribute* to conception and design, or acquisition of data, or analysis and interpretation of data;
  - *draft* the article or *revise* it critically for important intellectual content; and
  - *give their approval* of the final full version to be published.
  - **ALL 3 conditions must be fulfilled to be a credited author!**

**As editors and publishers one of the most common cases that we have to deal with are disputes over authorship, often between supervisors and disgruntled students. These are often impossible for us to resolve.**

***Dear Editor…I will be contacting the University Ombudsman and someone will be in contact with you in the near future…***

# Cover Letter

***Very important:***
***Your chance to speak directly to the Editor***

- Often overlooked by authors and filled cursorily (a big mistake!).
- You have spent months working on your paper.
  Do not hurry up now!

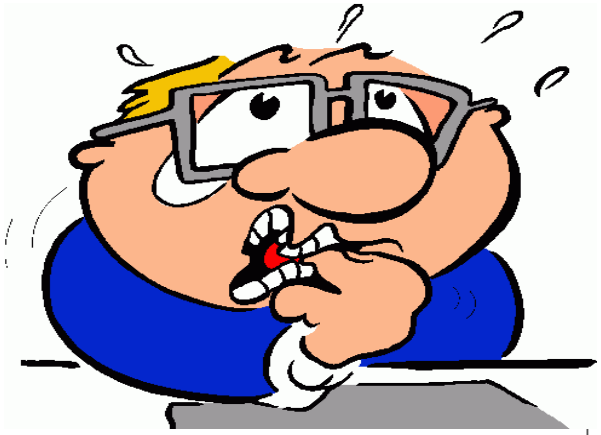
- Explain the main findings and motivation
- Highlight the novelty and significance of results

- State final approval of all co-authors
- State prior reviews, revisions, etc.

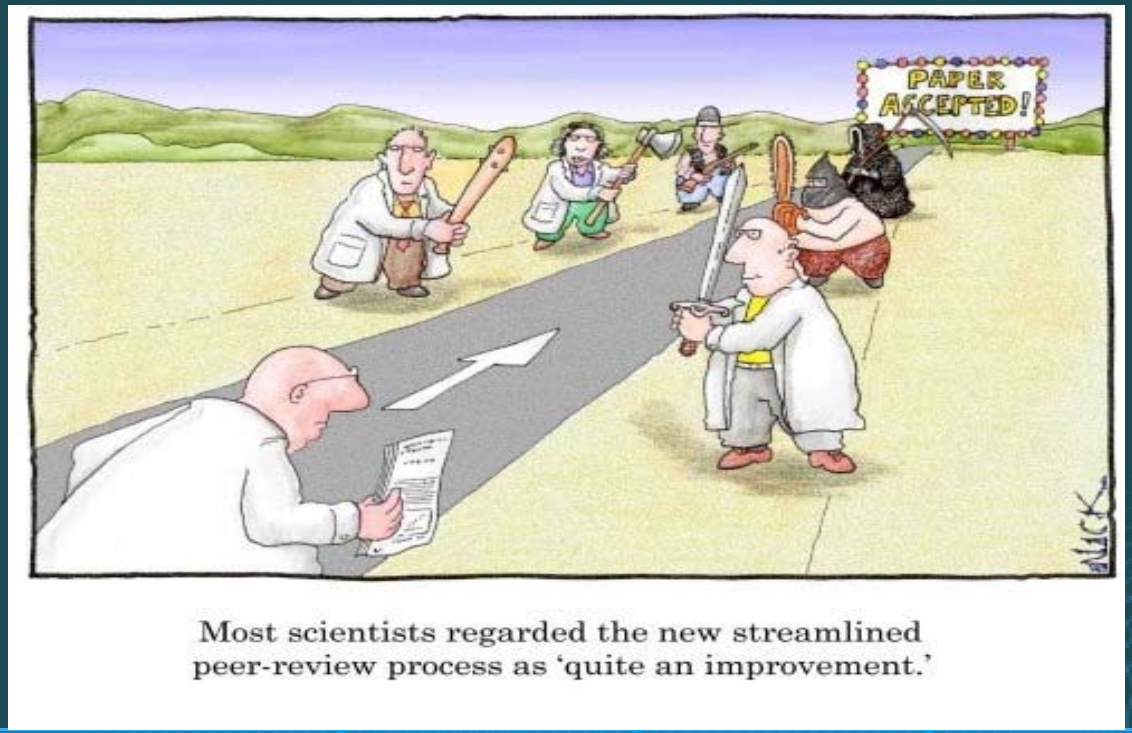
- Note special requirements (suggest not to contact a particular referee, for example)
- Suggest referees: experts, *not* collaborators

- ***State any conflicts of interest***


Send

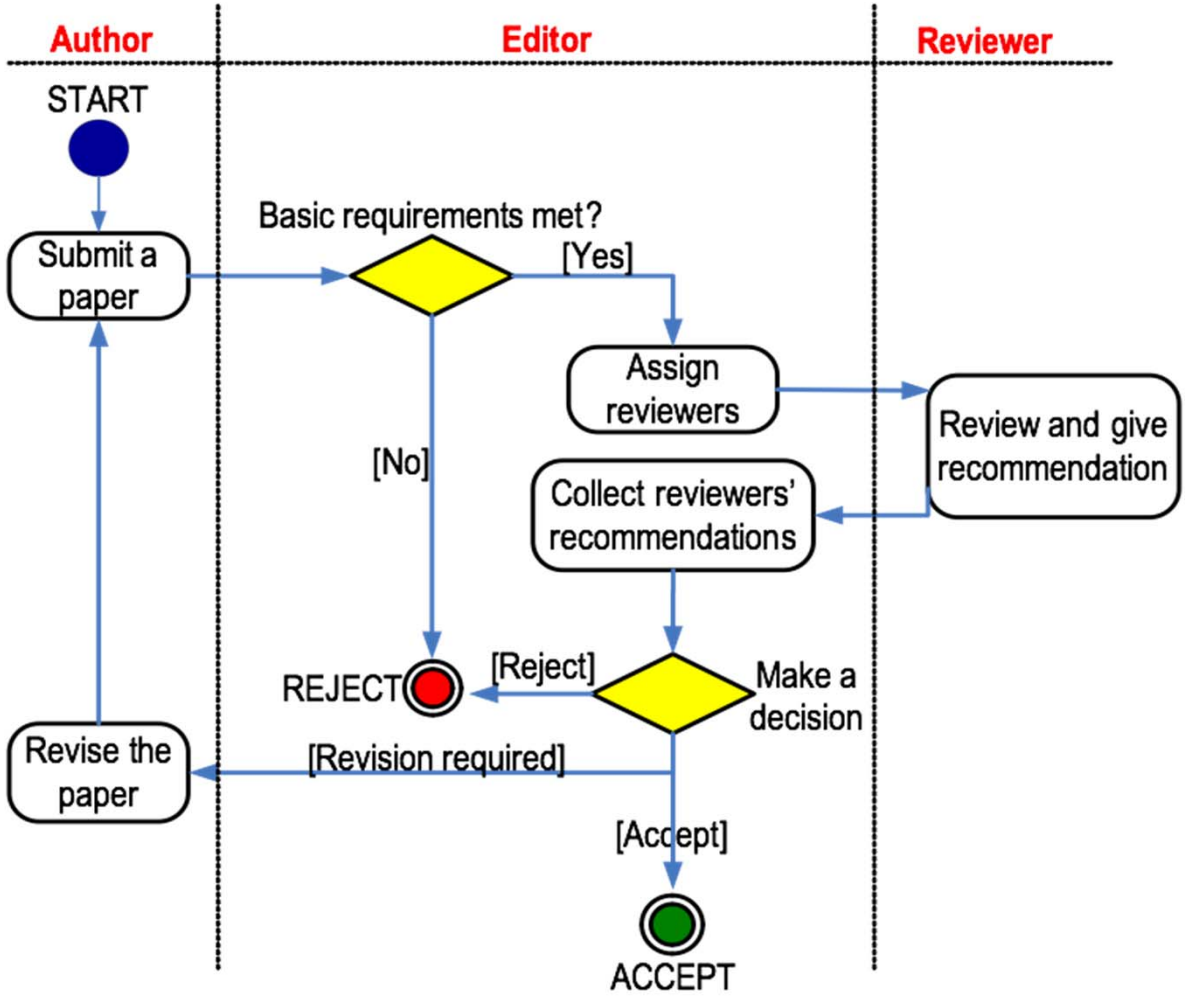


# The peer review process




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

# Peer review




**The 4 possible outcomes**

- **Accept as it is**
- **Accept with minor or moderate revision, usually not back to referees**
- **Major revision, revised manuscript usually goes back to referees**
- **Reject**

# Peer review process - role and tasks of reviewer

- The scientific publishing enterprise depends largely on the quality and integrity of reviewers
- Reviewers are at the heart of the scientific publishing process
- Reviewers should:
  - Provide fair and unbiased comments on the quality and value of an article
  - Write reports in a collegial and constructive manner with evidence-based comments
  - Treat all manuscripts in the same manner and make a clear recommendation

# First Decision: “Accepted” or “Rejected”

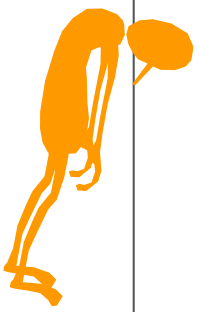
## Accepted

- 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**
  - Straight out rejection without peer review
  - 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.

# Why are manuscripts rejected?

- Poor research quality
- Poor manuscript development
- Poor English language and grammar
- Not the right journal
- Journal has recently published similar work
- Nothing new in the work presented

# Managing a rejection

- A significant percentage of papers are rejected by the Editor on submission without going out to review.
- Don’t take it personally! It does not necessarily mean the paper is not a good one.
- Work with reviewers’ feedback to strengthen the paper.
- Find another journal to submit to

# First Decision: “Major” or “Minor” Revisions

**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

**Minor revision**

- Basically, the manuscript is worthy 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!

# Manuscript revision: A great learning opportunity!

- Prepare a detailed letter of response
  - Copy-paste reviewer comments and address one by one*
- State specifically what changes you have made to the manuscript.
  - Give page and line number.
- Provide a scientific response to the comment you accept; or a convincing, solid and polite rebuttal to the point you think the reviewer is wrong.
- If numerous changes revise the whole manuscript
  - not just the parts the reviewers point out
- Minor revision does NOT guarantee acceptance after revision.
  - Do not count on acceptance, but address all comments carefully

*** This makes it much easier for the Editor**

# What leads to acceptance?

- **A**ttention to details
- **C**heck and double check your work
- **C**onsider the reviewers' comments
- **E**nglish must be as good as possible
- **P**resentation is important
- **T**ake your time with revision
- **A**cknowledge those who have helped you
- **N**ew, original and previously unpublished
- **C**ritically evaluate your own manuscript
- **E**thical rules must be obeyed

– Nigel John Cook
Editor-in-Chief, *Ore Geology Reviews*

# Promoting and monitoring your article performance post acceptance

# Promoting your article

## 1. Conferences

- Prepare to network
- Also connect online
- Online poster

## 2. Media relations

- Research statement
- Your institution’s communication’s channels
- Contact your editor or you can send an email to: researchcomm@elsevier.com

# Promoting your article

## 3. Social Media

### LinkedIn

- Share links to your articles, also in relevant groups
- Add images
- Add videos, AudioSlides

### Twitter

- Follow other researchers
- Post regularly, respond promptly
- Retweet

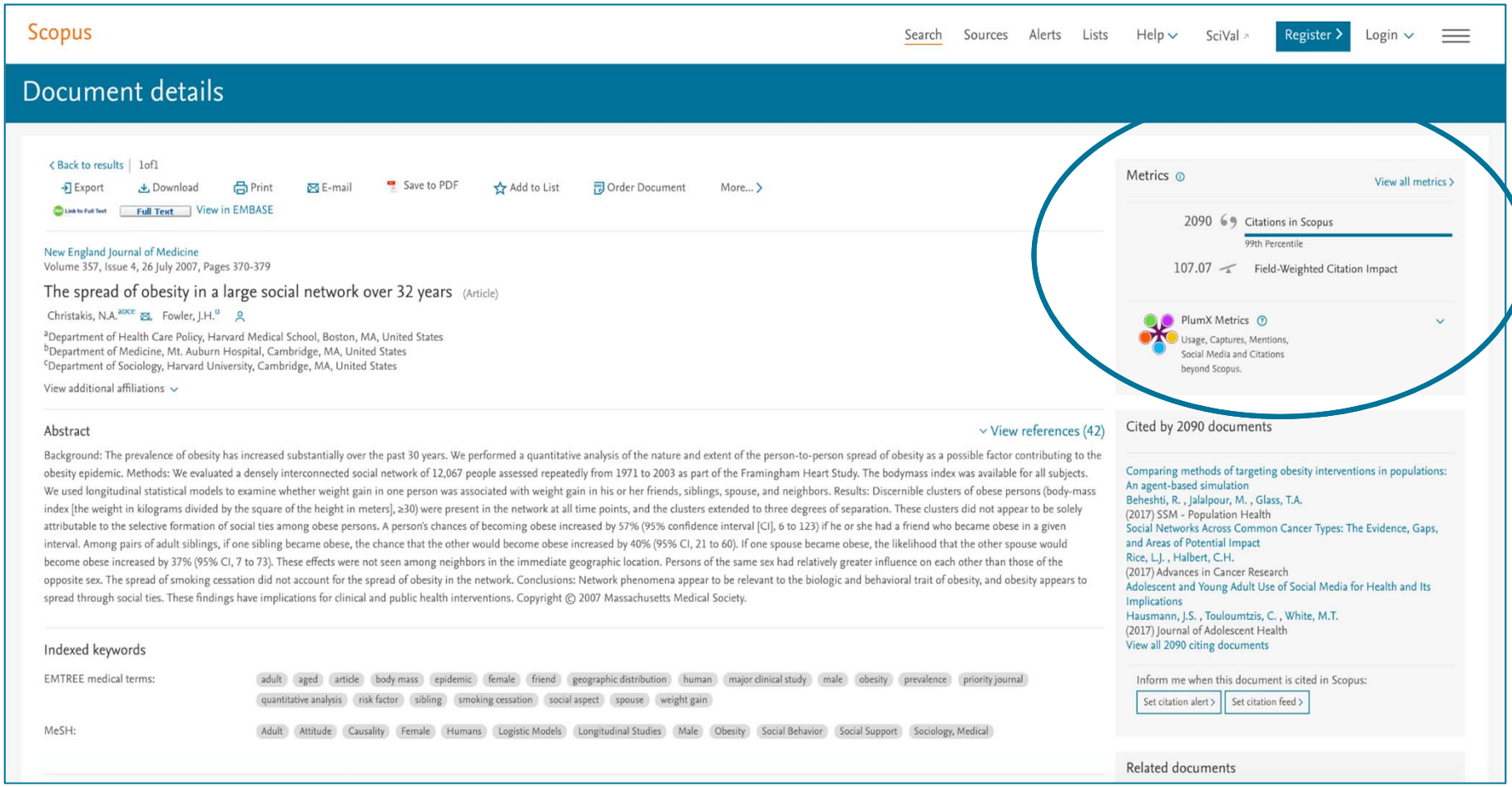
### Facebook

- Share images, videos, AudioSlides
- Link to your articles
- Discuss and ask for feedback

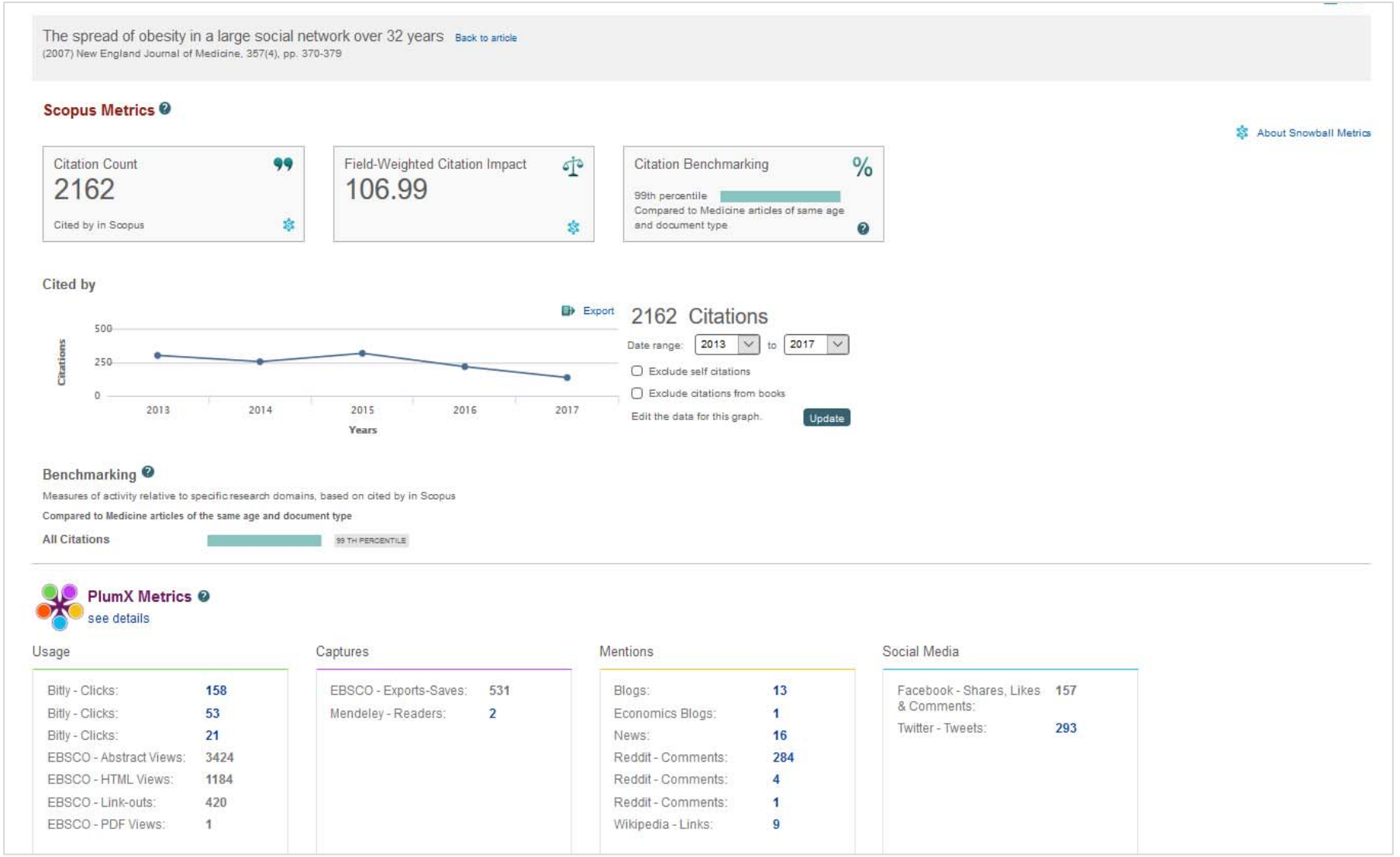
Every day, scholarly articles receive 12,000 new mentions across social media, news and blogs: that's one mention every seven seconds!

# Monitoring the performance of your article

## Scopus



# Monitoring the performance of your article - Scopus



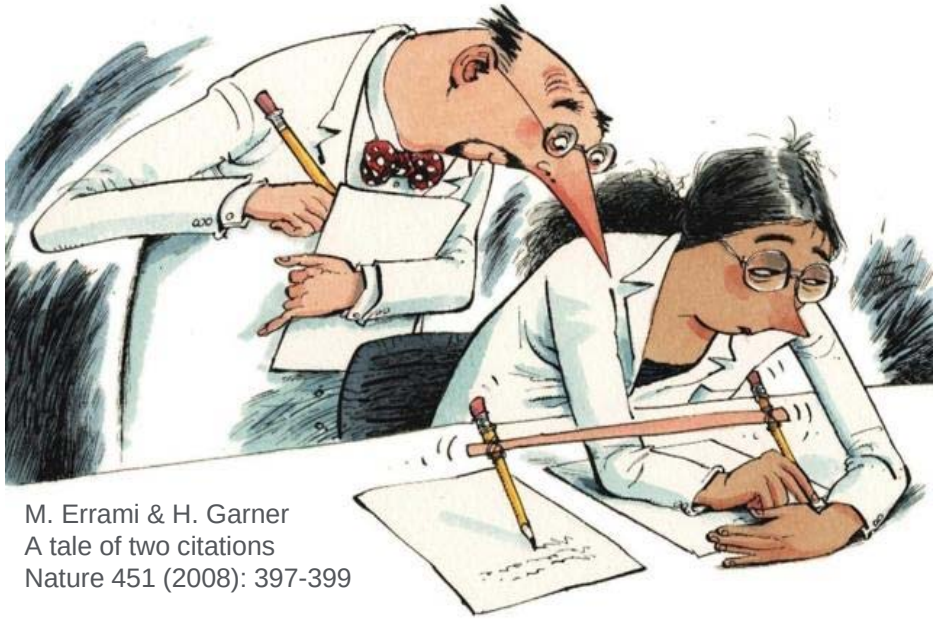
# Ethics in publishing

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

- International scientific ethics have evolved over centuries, and are commonly held throughout the world.

- Scientific ethics are 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

# Ethics Issues in Publishing

## Scientific misconduct

- Falsification of results

## Publication misconduct

- Plagiarism
  - Different forms / severities
  - The paper must be original to the authors

- Duplicate publication
- Duplicate submission
- Appropriate acknowledgement of prior research and researchers
- Appropriate identification of all co-authors
- Conflict of interest

# Data fabrication and falsification

*The most dangerous of all falsehoods is a slightly distorted truth*

G.C. Lichtenberg (1742-1799)

"… the fabrication of research data … **hits at the heart of our responsibility to society**, the reputation of our institution, the trust between the public and the biomedical research community, and our personal credibility and that of our mentors, colleagues…"

"It can **waste the time of others**, trying to replicate false data or designing experiments based on false premises, and can lead to therapeutic errors. It can never be tolerated."

**Professor Richard Hawkes**
**Department of Cell Biology and Anatomy**
**University of Calgary**

# Data fabrication and falsification

**Falsification:**

- Manipulation of research materials, equipment, processes
- Changes in / omission of data or results such that the research is not accurately represented in the research record

This can include selecting data to fit a preconceived hypothesis:

- do not include (data from) an experiment because '*it did not work*', or
- show *'representative'* images that do not reflect the total data set, or
- simply shelve data that do not fit."

# Data Fabrication and Falsification - often go hand in hand

## Chinese scientists dismissed after 70 suspect paper

[BEIJING] Two Chinese university dismissed after 70 papers they p international journal were revoke **fraud**.

Hua Zhong and Tao Liu, lecturers **University** in south **China**'s **Jiang** the papers in 2007 in **Acta** Cryst

## False positives: fraud and misconduct are threatening scientific research

High-profile cases and modern technology are putting scientific deceit under the microscope

**Alok Jha**, science correspondent
The Guardian, Thursday 13 September 2012 18.12 BST
Jump to comments (241)

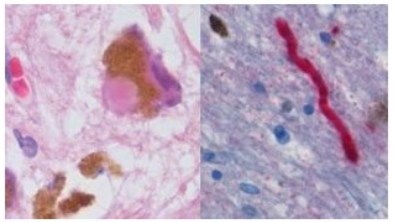
The Dutch psychologist Diederik Stapel was found to have published fabricated data in 30 peer-reviewed papers. Photograph: Hollandse Hoogte/Boxem

## Parkinson's Researcher Fabricated Data

**Neuroscientist Mona Thiruchelvam agrees to retract two studies linking neurodegeneration to pesticides.**

By Hayley Dunning | June 29, 2012

31 Comments Like 47 Pin it 8 Link this Stumble Tweet this



Substantia nigra in Parkinson's disease WIKIMEDIA COMMONS, FILIP EM

A former assistant professor at the University of Medicine and Dentistry, New Jersey (UMDNJ) committed research misconduct by fabricating data, according to an investigation by the university and the Department of Health and Human Services' Office of Research Integrity (ORI). The ORI, which announced its findings on Thursday (June 28), determined that Mona Thiruchelvam falsified cell count data published in two papers in 2005 in *Environmental Health Perspectives* and *Journal of Biological Chemistry*, both of which she has agreed to retract.

GLOBAL

## Scientists sent to prison for fraudulent conduct

**Geoff Maslen** 25 April 2013 Issue No:269

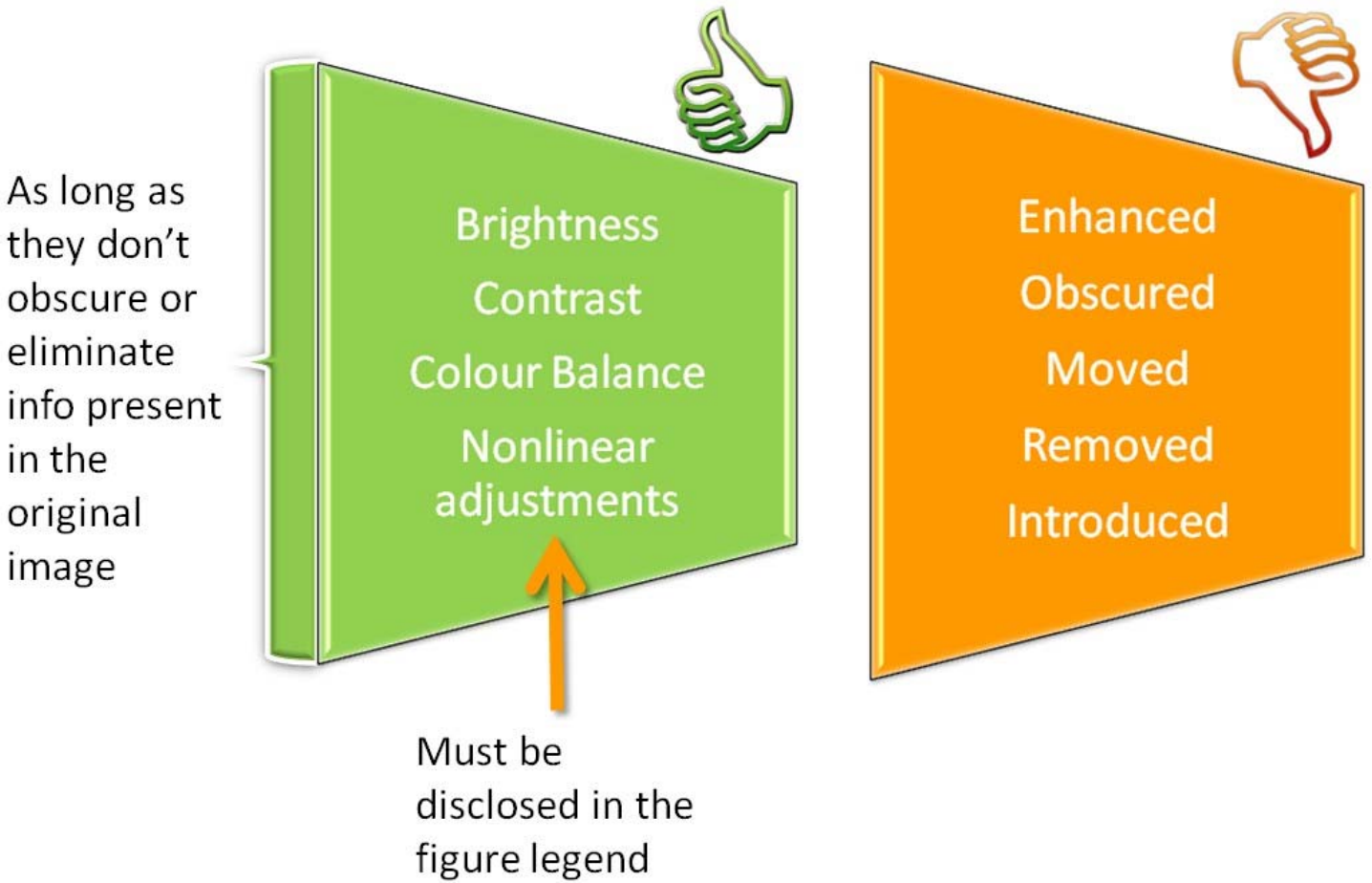
SCIENCEINSIDER

Breaking news and analysis from the world of science policy

## Harvard Psychology Researcher Committed Fraud, U.S. Investigation Concludes

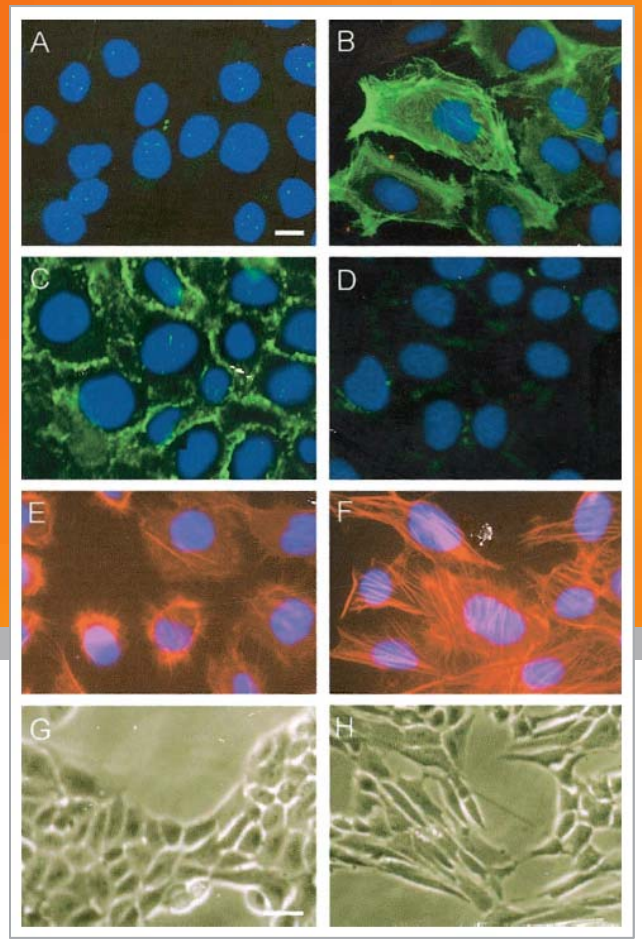
## Rising Japanese scientist faked heralded stem cell research, lab says

# Figure Manipulation

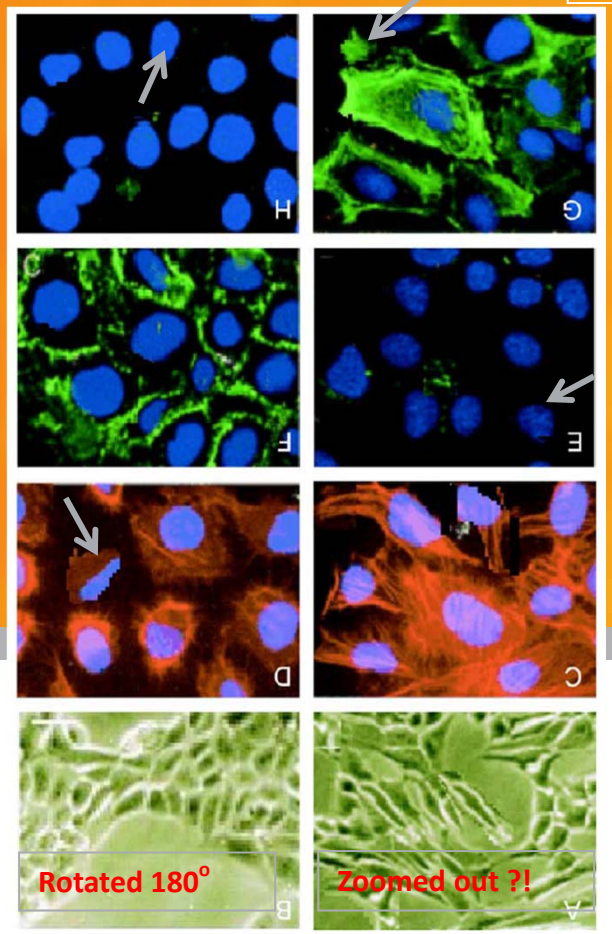


# Figure Manipulation – Example
## Different authors and experiments

Am J Pathol, 2001




Life Sci, 2004
Manipulation

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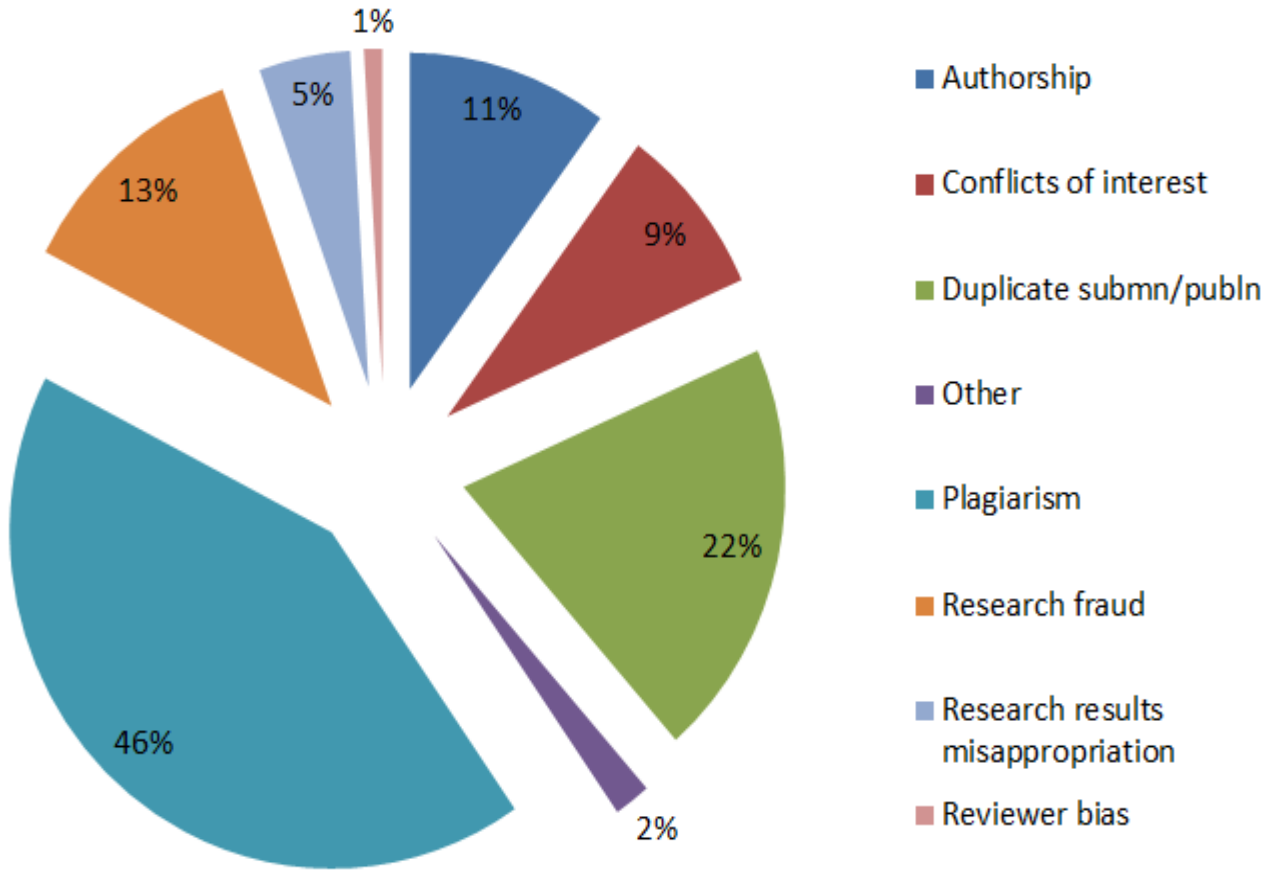
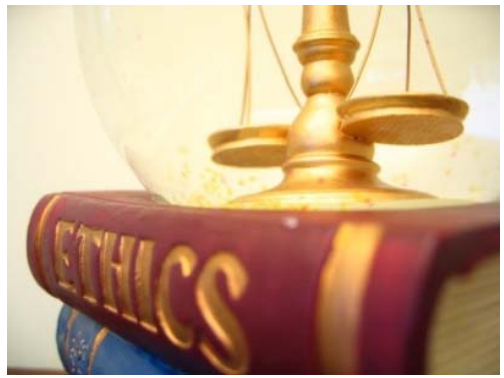
# Plagiarism high amongst ethics issues

*Sample of cases reported to Elsevier Journals publishing staff in 2012*



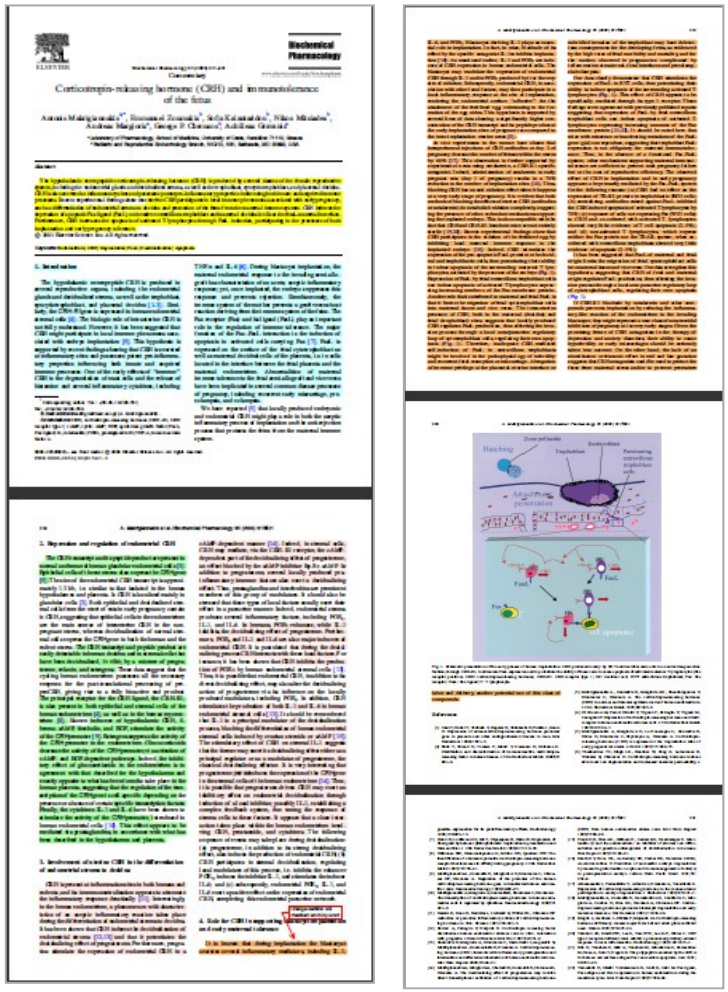
# Plagiarism Detection Tools

- Elsevier is participating in 2 plagiarism detection schemes
  - **Turnitin** (for universities) & **Ithenticate** (for publishers and corporations)
  - Manuscripts are checked against a database of 20 million peer reviewed articles which have been donated by 50+ publishers, including Elsevier.
  - All post-1994 Elsevier journal content is included, and pre-1995 content is being added week-by-week
- Editors and reviewers
- Your own colleagues…
- "Other "whistleblowers" …The walls have ears, it seems ...



# Publication ethics – Self-plagiarism

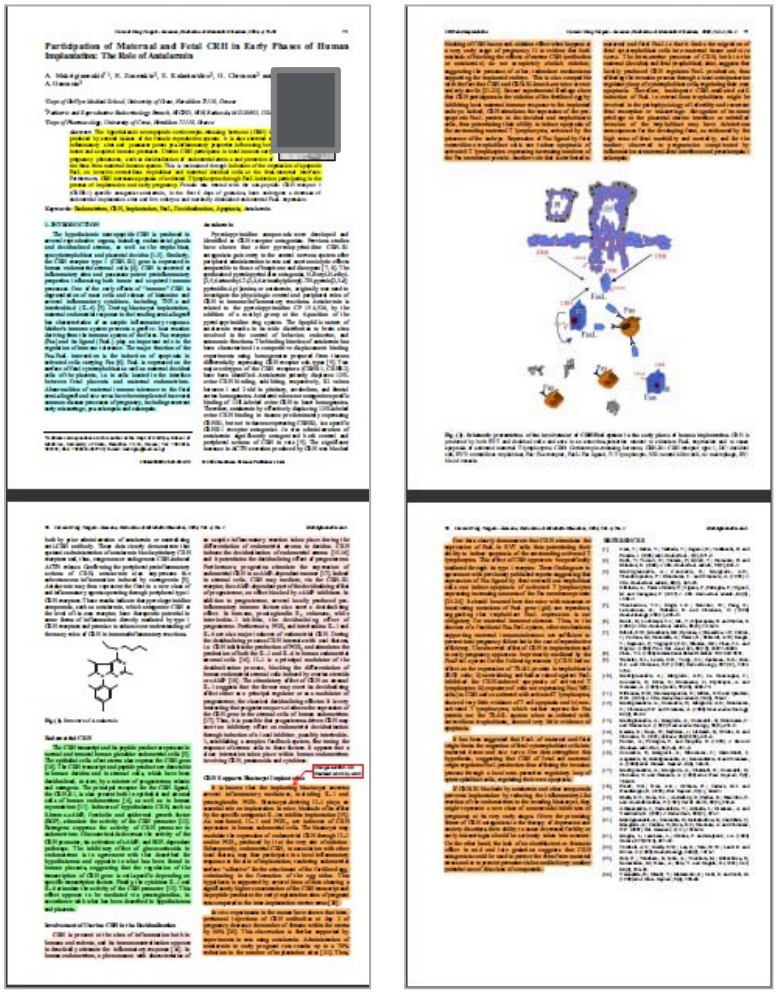
**2003**



Same colour left and right

Same text

**2004**



# Retractions

doi:10.1016/j.sigpro.2005.07.019 Cite or Link Using DOI


**RETRACTED: Matching pursuit-based approach for ultrasonic flaw**

N. Ruiz-Reyes[a], P. Vera-Candeas[a], J. Curpián-Alonso[a], J.C. Cuevas-Martinez[a] and F. Ló

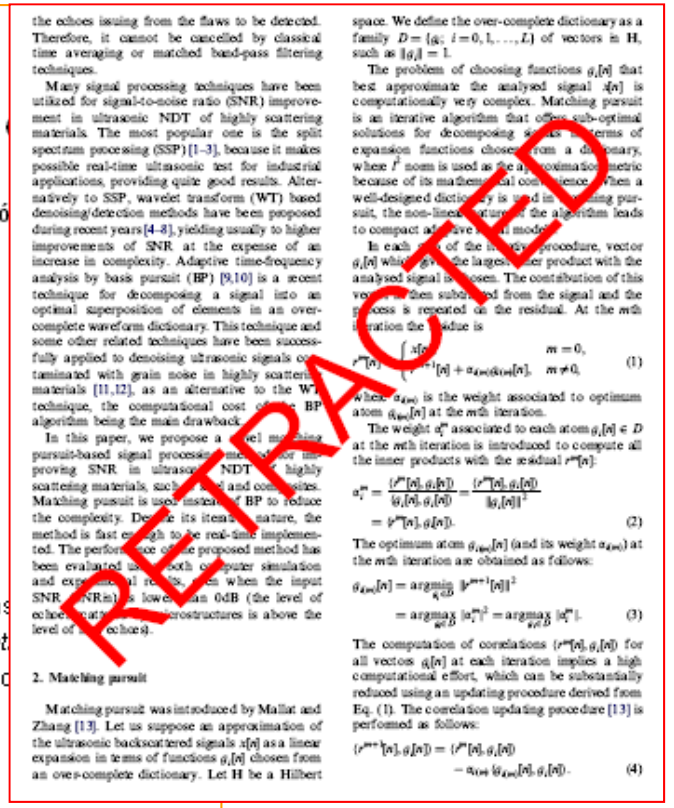
[a]Electronics and Telecommunication Engineering Department, University of Jaén, Linares, Jaén, Spain
[b]Signal Theory and Communications Department, University of Alcalá, Alcalá, Madrid, Spain

Available online 24 August 2005.

This article has been retracted at the request of the Editor-in-Chief and Publisher. Please see http://www.elsevier.com/locate/withdrawalpolicy

Reason: This article is virtually identical to the previously published article: "New matching pursuit-bas algorithm for SNR improvement in ultrasonic NDT", *Independent Nondestructive Testing and Evaluat International*, volume 38 (2005) 453 – 458 authored by N. Ruiz-Reyes, P. Vera-Candeas, J. Curpián-Alc Mata-Campos and J.C. Cuevas-Martínez.

Corresponding author. Tel.: +34 953648554; fax: +34 9536




Articles of which the authors have committed plagiarism or fraud are not removed from ScienceDirect. Everybody who downloads it will see the reason of retraction…

# Publication ethics – How it can end .....

## Some actual emails……..

*"I deeply regret* the inconvenience and agony caused to you by my mistake and request and beg for your pardon for the same. As such ***I am facing lot many difficulties in my personal life*** and request you not to initiate any further action against me.

I would like to request you that all the correspondence regarding my publications may please be sent to me directly so that I can reply them immediately. To avoid any further controversies, ***I have decided not to publish any of my work in future."***

"Dear Editor,
Good day! Today, I find my student (named xxx) submit a paper to you without my agreement. However, this paper is an unethical practice. ***This boy has been punished***. Please forgive us. Again, we are very, very sorry to waste your time and work. Please withdraw this paper as soon as possible."

# What are your responsibilities as an author?

- Report data that is –
  - Real
  - Unfabricated
  - Original

- Declare any conflicts of interest.
- Ensure proper authorship.
- Submit to one journal at a time.
- Make sure to cite others' work carefully and properly.

# Thank you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