



# How to write (and review) a research paper

Stefano Pagliara

DESTEC-Department of Energy Engineering, Systems,  
Land and Construction

University of Pisa (Italy)

The dissemination of research results and findings is an integral part of the research process

a scientific paper is a “a written and published report describing original research results” (Day, 1998)

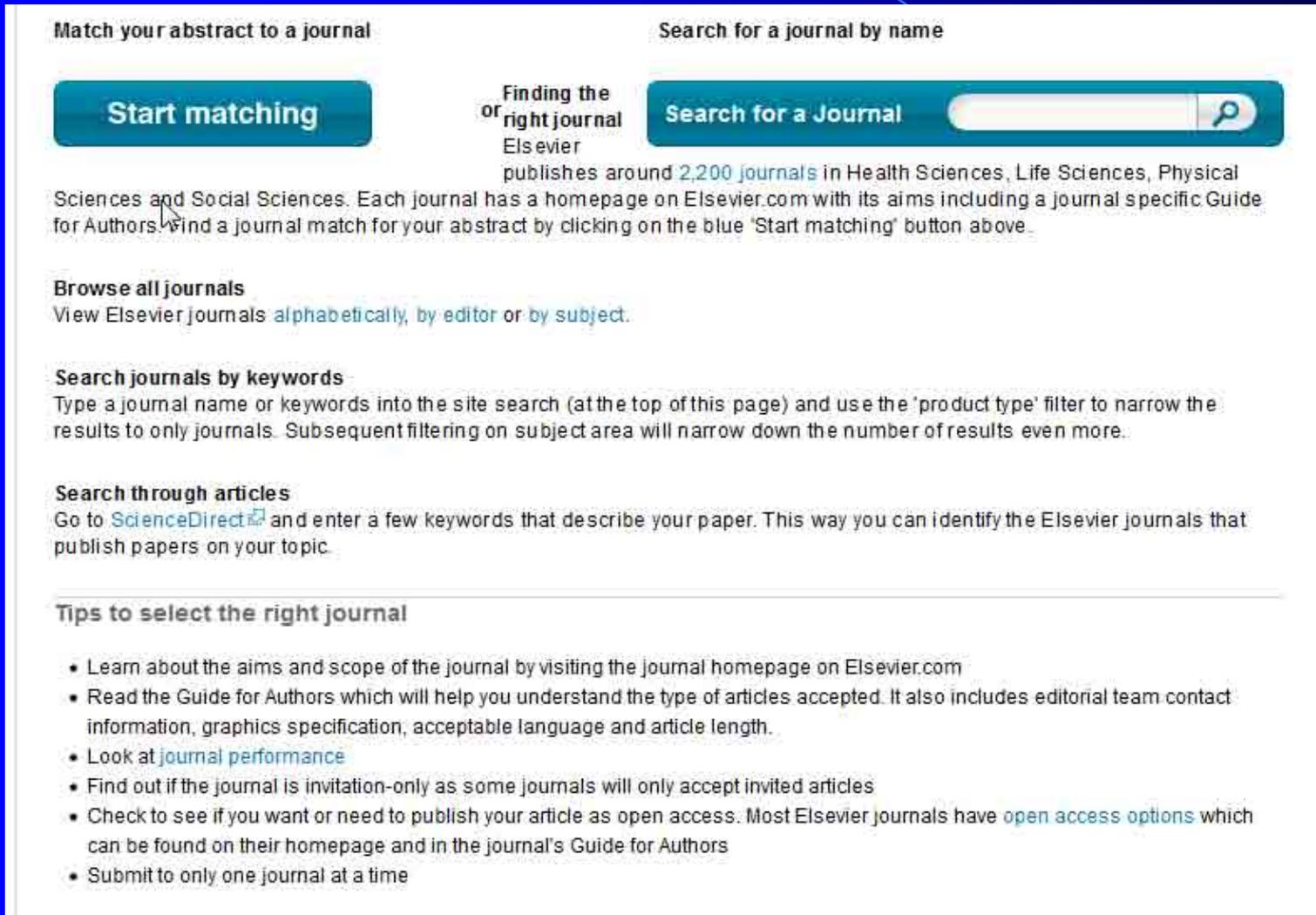
A scientific paper must be published in the right place (for instance in a peer reviewed journal in the respective field). When published in the wrong place, even an excellent research report is not validly published.



# The publishing process steps:

## 1. Find the right journal

The first step is finding the right journal for your paper.



The screenshot shows the Elsevier website's interface for finding journals. It features two main sections: 'Match your abstract to a journal' and 'Search for a journal by name'. The 'Match your abstract to a journal' section includes a prominent blue 'Start matching' button. The 'Search for a journal by name' section includes a search bar with a magnifying glass icon and a 'Search for a Journal' button. Below these sections, there is a central text block that reads: 'Finding the right journal Elsevier publishes around 2,200 journals in Health Sciences, Life Sciences, Physical Sciences and Social Sciences. Each journal has a homepage on Elsevier.com with its aims including a journal specific Guide for Authors. Find a journal match for your abstract by clicking on the blue 'Start matching' button above.' Below this, there are three sub-sections: 'Browse all journals' with a link to view journals alphabetically, by editor, or by subject; 'Search journals by keywords' with instructions on how to use the site search and filters; and 'Search through articles' with instructions on how to use ScienceDirect to find journals. At the bottom, there is a section titled 'Tips to select the right journal' which contains a bulleted list of seven tips.

**Match your abstract to a journal**

**Search for a journal by name**

**Start matching**

**Search for a Journal**

**Finding the right journal**  
Elsevier publishes around **2,200 journals** in Health Sciences, Life Sciences, Physical Sciences and Social Sciences. Each journal has a homepage on Elsevier.com with its aims including a journal specific Guide for Authors. Find a journal match for your abstract by clicking on the blue 'Start matching' button above.

**Browse all journals**  
View Elsevier journals [alphabetically](#), [by editor](#) or [by subject](#).

**Search journals by keywords**  
Type a journal name or keywords into the site search (at the top of this page) and use the 'product type' filter to narrow the results to only journals. Subsequent filtering on subject area will narrow down the number of results even more.

**Search through articles**  
Go to [ScienceDirect](#) and enter a few keywords that describe your paper. This way you can identify the Elsevier journals that publish papers on your topic.

**Tips to select the right journal**

- Learn about the aims and scope of the journal by visiting the journal homepage on Elsevier.com
- Read the Guide for Authors which will help you understand the type of articles accepted. It also includes editorial team contact information, graphics specification, acceptable language and article length.
- Look at [journal performance](#)
- Find out if the journal is invitation-only as some journals will only accept invited articles
- Check to see if you want or need to publish your article as open access. Most Elsevier journals have [open access options](#) which can be found on their homepage and in the journal's Guide for Authors
- Submit to only one journal at a time

## 2. Prepare your paper

Each journal has its own aims & scope as well as requirements for publication so it is important you select a journal and download the Guide for Authors for that journal to prepare your paper.

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

[Start matching](#) or [Prepare your paper for submission](#)  

Each journal has its own requirements for publication which are specified in the journal's Guide for Authors. This guide can be found on the journal's homepage.



**Before you begin** Read the Guide for Authors. You need to consider topics in advance related to:

- Ethical requirements
- Open access options, copyright and funding body agreements relevant for that journal

**Preparation of your paper**  
Consulting and following the instructions in the Guide for Authors is essential. It also contains information pertinent to the preparation of your paper such as:

- article structure
- abstract
- highlights
- keywords
- accepted formats for artwork, data sources and video

A number of content innovations available for your journal of choice also require preparation. Some of the content innovations we have been adding to our journals include [article-based publishing](#), [graphical abstracts](#), [highlights](#) and [Google Maps](#)

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**Further resources**

**Understand the Publishing process**  
More background information can be found in this comprehensive guide [Understanding the publishing process](#). It covers topics such as using EES, Authors' Rights, Ethics & Plagiarism, the Impact Factor and other so-called bibliometric indicators



# If it is not the right journal.....

Robert A. Day (1998). *How to write & publish a scientific paper*. 5<sup>th</sup> Edition, ORYX Press



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# Something to say.....

## **Rise in Bogus (not real) Academic Conferences and Open-Access Journals**

There is a rise in email solicitations requesting manuscripts for unfamiliar journals (often with very captivating names !!!) or invitations to unknown academic conferences or worse scam websites using the name of existing conference series. These emails often can be traced back to seemingly legitimate websites such as to OMICS or WASET which invite potential authors to submit manuscripts without informing them of price author fees, or fraudulently listing academic editors who have nothing to do with the journal or conference.

*Source: IAHR-Europe Newsflash-June 2014*

This phenomenon has been called “the dark side of open access,” (the movement to make scholarly publications freely available).

The number of these journals and conferences has exploded in recent years as scientific publishing has shifted from a traditional business model for professional societies and organizations built almost entirely on subscription revenues to open access, which relies on authors or their backers to pay for the publication of papers online, where anyone can read them.

**Such problems can be avoided by using links to conference events published in established websites such as our own IAHR website or from reliable e-zines such as NewsFlash World or NewsFlash Europe.**



Once you have selected the right journal, choose the type of content.

For example, the different types of content that appear in ASCE journals are:

Technical papers

Technical notes

Discussions

Closures

Forums

Case studies

Editorials

Editor's notes

Errata

.....



### Technical papers:

Technical papers are full-length papers of value and interest to civil engineers. They must be original reviews of past practice, present information of current interest, or probe new fields of civil engineering activity. They should report results of thought-provoking studies that contribute to the planning, analysis, design, construction, management, or maintenance of civil engineering works.

### Technical notes:

Technical notes present (1) original, practical information; (2) preliminary or partial results of research; (3) concisely presented research results; and (4) innovative techniques to accomplish design objectives.

### Discussions:

Discussions present significant comments or questions about the technical content of a technical paper or note published in a journal. Discussions should not contain matter readily found elsewhere, advocate special interests, contain obvious commercial intent, controvert established fact, or be purely speculative.

### Closures:

Closures are responses to discussions. Closures are written by the author(s) of the original paper or note. The author(s) addresses and clarifies issues raised in discussions and provides conclusions to the issues.

### Forums:

Forums are thought-provoking opinion pieces or essays founded in fact, sometimes containing speculation, on a civil engineering topic of general interest and relevance to the readership of the journal. The purpose of a forum is to stimulate discussion rather than document an advance in research or its application.

### Case Studies:

Case studies describe a method or application that illustrates a new or existing principle or presents an innovative way to solve a problem. Ideally, results should have broad implications and not be specific to only the case presented.

# How to write a good paper: general requirements

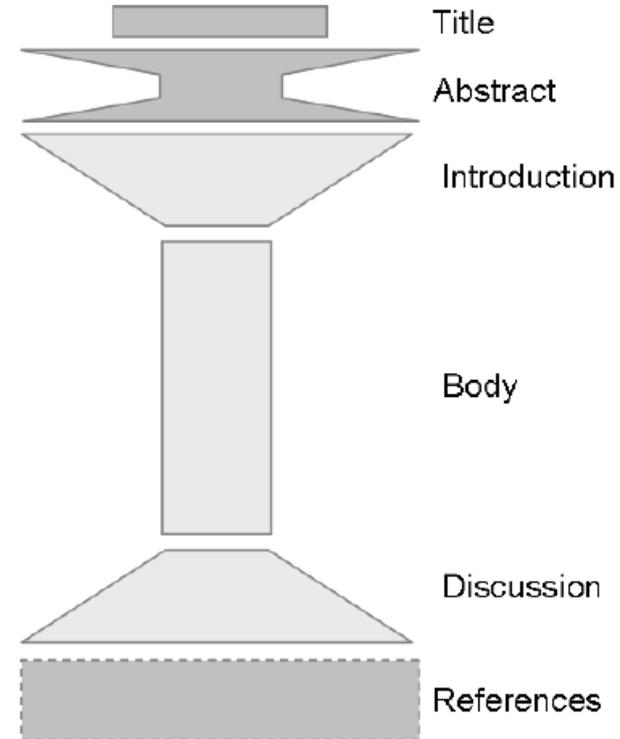
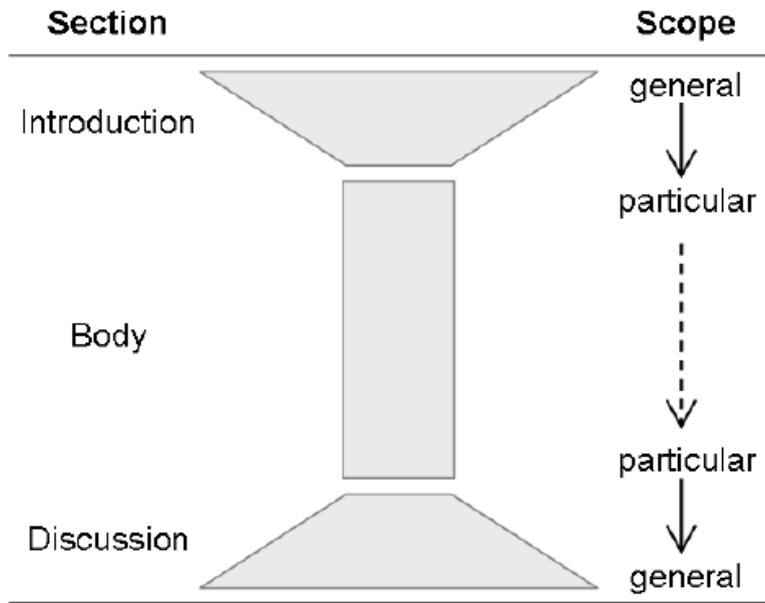
Structure of the manuscript:

- 1) Title (maximum 70 symbols including spaces)
- 2) Author(s) name(s) and full *address(es)*, plus *e-mail address(es)*
- 3) A minimum number of *keywords*
- 4) *Abstract* of some 150 words (concise and clear)
- 5) Introduction
- 6) Main text
- 7) Discussion and Conclusions
- 8) References
- 9) Notation
- 10) Tables
- 11) Figure captions



# Paper Organization

The general structure of a paper has to be organized as follows:



**Fig. 1.** The *hourglass model* [8] (left) and the *King model* (right) of paper structure.



# Title

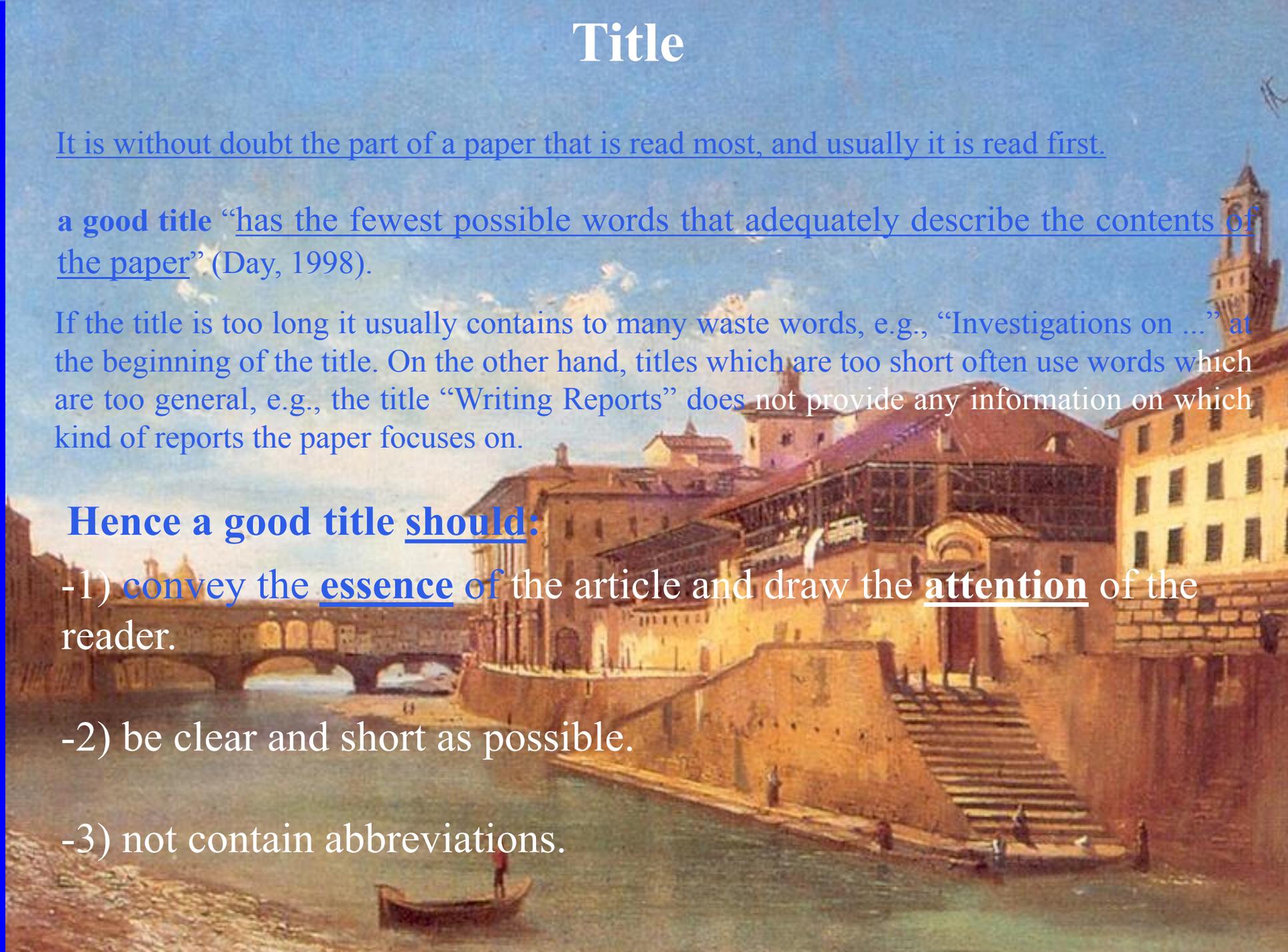
It is without doubt the part of a paper that is read most, and usually it is read first.

a good title “has the fewest possible words that adequately describe the contents of the paper” (Day, 1998).

If the title is too long it usually contains too many waste words, e.g., “Investigations on ...” at the beginning of the title. On the other hand, titles which are too short often use words which are too general, e.g., the title “Writing Reports” does not provide any information on which kind of reports the paper focuses on.

**Hence a good title should:**

- 1) convey the essence of the article and draw the attention of the reader.
- 2) be clear and short as possible.
- 3) not contain abbreviations.



# Title

## In other words:

1. Make your title specific enough to describe the contents of the paper, but not so technical that only specialists will understand. The title should be appropriate for the intended audience.

-The title usually describes the subject matter of the article: “Effect of Smoking on Academic Performance»

-Sometimes a title that summarizes the results is more effective: “Students Who Smoke Get Lower Grades”

# Authors

only persons who have significantly **contributed** to the research or project and paper preparation shall be listed as authors.

The corresponding author attests to the fact that any others named as coauthors have seen the final version of the paper and have agreed to its submission for publication.

An author who submits a manuscript for publication accepts responsibility for having properly included all, and only, qualified coauthors.

# Abstract

Basically, an abstract comprises a one-paragraph summary of the whole paper. Abstracts have become increasingly important, as electronic publication databases are the primary means of finding research reports in a certain subject area today.

The abstract should

- 1) **summarize the objectives, methods, results and main conclusions** of the paper.
- 2) be concise as possible. Many journals have a maximum number of words that can be used for the abstract. Most abstracts consist of approximately 100-200 words.

# Abstract

A well organized abstract should answer to the following questions:

1. Motivation: Why do we care about the problem and the results?
2. Problem statement: What problem is the paper trying to solve and what is the scope of the work?
3. Approach: What was done to solve the problem?
4. Results: What is the answer to the problem?
5. Conclusions: What implications does the answer imply?



# Abstract

Suggestions:

It is not easy to include all this information in just a few words. Start by writing a summary that includes whatever you think is important, and then gradually prune it down to size by removing unnecessary words, while still retaining the necessary concepts.

Don't use abbreviations or citations in the abstract. It should be able to stand alone without any footnotes.



# Abstract

Example of a good abstract:

## Two-Phase Flow Characteristics of Stepped Spillways

Robert M. Boes<sup>1</sup> and Willi H. Hager, F.ASCE<sup>2</sup>

**Abstract:** An experimental study on a large model flume with fiber-optical instrumentation indicated that minimum Reynolds and Weber numbers of about  $10^5$  and 100, respectively, are required for viscosity and surface tension effects to become negligible compared to gravitational and inertial forces expressed by Froude similitude. Both the location of and the flow depth at the inception point of air entrainment can be expressed as functions of a so-called roughness Froude number containing the unit discharge, step height and chute angle. The depth-averaged air concentration is found to depend only on a normalized vertical distance from the spillway crest and the chute angle for chute slopes ranging from embankment to gravity dam spillways. Air concentration profiles can be expressed by an air bubble diffusion model. The pseudobottom air concentration allows the assessment of the cavitation risk of stepped chutes and is approximated by a regression function. Finally, a new velocity distribution function is presented consisting of a power law up to 80% of the characteristic nondimensional mixture depth, and a constant value above.

**DOI:** 10.1061/(ASCE)0733-9429(2003)129:9(661)

**CE Database subject headings:** Two phase flow; Flow characteristics; Spillways; Scale effect.

Robert M. Boes and Willi H. Hager (2003). "Two-Phase Flow Characteristics of Stepped Spillways." *J. Hydraul. Eng.*, 129(9), 661–670.



# Introduction

The introduction serves the purpose of leading the reader from a general subject area to a particular field of research.

In brief, the introduction should

- 1) guide the reader to current state-of-the-art in the field
- 2) allow the reader to understand the rest of the paper without referring to previous publications on the topic

Even though the introduction is the first main section in a paper, many researchers write – or at least finish – it very late in the paper writing process, as at this point the paper structure is complete, the reporting has been done and conclusions have been drawn.



# Introduction

Suggestions:

What question did you ask in your work? Why is it interesting?

The introduction summarizes the relevant literature so that the reader will understand why you were interested in the question you asked. One to four paragraphs should be enough.

End with a sentence explaining the specific question you asked in this work!

# Body of the paper

The body of a paper reports on the actual research done to answer the research question or problem identified in the introduction.

Normally, the body content depends heavily on the type of paper:

- In empirical papers, the paper body describes the material and data used for the study, the methodologies applied to answer the research questions, and the results obtained. It is very important that the study is described in a way that makes it possible for peers to repeat or to reproduce
- Case study papers describe the application of existing methods, theory or tools. Crucial is the value of the reflections abstracted from the experience and their relevance to other designers or to researchers working on related methods, theories or tools.
- Methodology papers describe a novel method which may be intended for use in research or practical settings (or both), but the paper should be clear about the intended audience.
- Theory papers describe principles, concepts or models on which work in the field (empirical, experience, methodology) is based; authors of theoretical papers are expected to position their ideas within a broad context of related frameworks and theories. Important criteria are the originality or soundness of the analysis provided as well as the relevance of the theoretical content to practice and/or research in the field.



# Discussion

Thinking in terms of the hourglass model (see previous figure) the discussion and conclusion section is somehow the counterpart to the introduction since this section should lead the reader from narrow and/or very specific results to more general conclusions.

Generally, this section includes:

- Presentation of background information as well as recapitulation of the research aims of the present study.
- Brief summary of the results, whereas the focus lies on discussing and not recapitulating the results.
- Comparison of results with previously published studies.
- Conclusions or hypotheses drawn from the results, with summary of evidence for each conclusion.
- Proposed follow-up research questions.

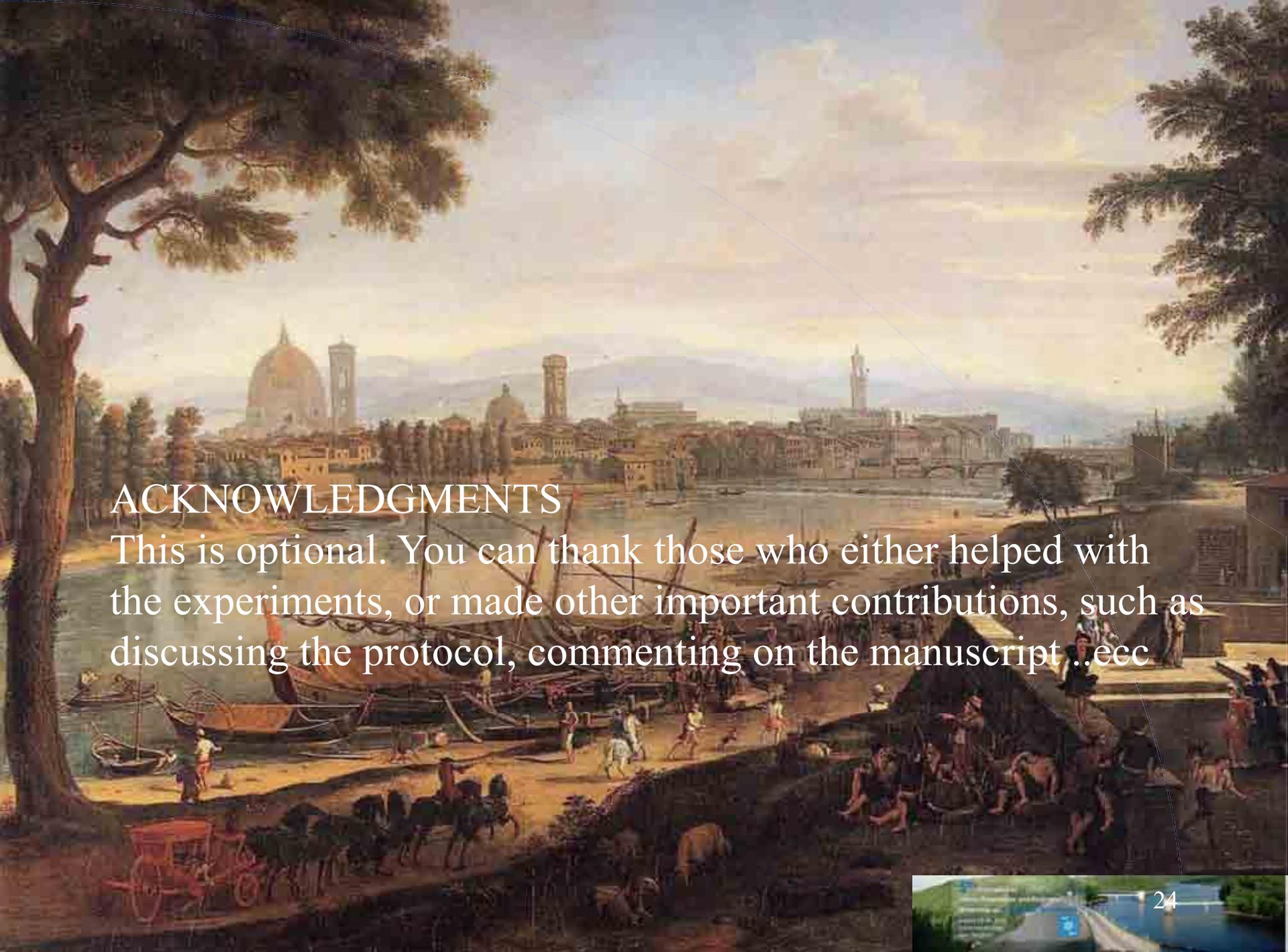


# Conclusions

It is an ending section which states the concluding ideas and concepts of the preceding writing!

Synthesize the main point of the paper, focusing on the most relevant ideas you are proposing or discussing.

Emphasize the future perspective and the limit of validity of your results.

A detailed Renaissance-style painting of a river scene. In the foreground, a large tree on the left frames the view. The river is filled with various boats, including galleys and smaller vessels. On the banks, there are numerous figures engaged in various activities, some on horseback. In the background, a city with a prominent dome and several towers is visible across the water. The sky is filled with soft, golden light, suggesting a sunset or sunrise.

## ACKNOWLEDGMENTS

This is optional. You can thank those who either helped with the experiments, or made other important contributions, such as discussing the protocol, commenting on the manuscript ..ecc

# References (LITERATURE CITED) (1)

Embedding the own work in related literature is one of the essential parts of research writing. There are citations of references in the text, as well as a list of cited references at the end of the paper.

General roles to follow:

- It is important to stay updated with the latest literature. Always cite the most recent papers that are relevant to your work (It looks very unprofessional if you refer to a book from 1975 but neglect to cite a paper from 2002 providing new data and insights that are pertinent to your topic).
- Make sure that you **cite your sources properly**. Journals always provide guidelines on how to cite references, including scientific papers, book chapters, and even Internet sites. It is important that you *strictly* follow the format used by the journal to which you intend to submit your work.
- Focus on peer-reviewed scientific sources of information to support the statements that you make in your paper. Peer-reviewed papers are only accepted and published by the journal after the author has successfully addressed the concerns of the reviewers. The journals of all the major professional scientific societies are peer-reviewed.



# References (2)

-Try to avoid citing so-called ‘grey’ or ‘gray’ literature as much as possible. **Grey literature** includes all literature that is not peer-reviewed, such as unpublished reports, newsletters, working papers, theses, government documents, environmental impact reports, bulletins, fact sheets, book chapters and (often) conference proceedings.

Grey literature is not subject to the same degree of rigorous evaluation as peer-reviewed papers are. If you cannot avoid using grey literature you should be cautious about the risk that the authors may have used poor methods or jumped to unjustified conclusions.

-The same problems that exist with grey literature also count for the **Internet**. Therefore, you have to be extremely cautious when using the Internet as a source of data. Avoid referring to Internet sites, unless you can ascertain that they represent a reliable source, recognized authority or database (e.g. IUCN Red List database, UNEP WCMC Global Biodiversity Atlases, or FAO Fishbase).

-Avoid literally copying text, unless it is functional (e.g., if you want to emphasize its original meaning or phrasing). When using original text, *always* use quotation marks.

- Before submitting your manuscript, always make sure to check if your reference list is complete!



# Tables

Tables can be the best way to present data or other essential information. The tables you submit with your manuscript should be prepared with the same skill, thought, and care as the text.

Tables should have a brief title describing what is being presented in the table.

**If you can summarize the information in one sentence, then a table or a graph is not necessary.**

# Useless Tables

**Table 2. Effect of temperature on growth of oak (*Quercus*) seedlings\***

Temp (°C)	Growth in 48 h (mm)
-50	0
-40	0
-30	0
-20	0
-10	0
0	0
10	0
20	7
30	8
40	1
50	0
60	0
70	0
80	0
90	0
100	0

\*Each individual seedling was maintained in an individual round pot, 10 cm in diameter and 100 m high.

*Day (1998). How to write & publish a scientific paper. 5<sup>th</sup> Edition, ORYX Press*

Table 2 has no columns of identical readings, and it looks like a good table. But is it? The independent variable column (temperature) looks reasonable enough, but the dependent variable column (growth) has a suspicious number of zeros. You should question any table with a large

number of zeros (whatever the unit of measurement) or a large number of 100s when percentages are used. Table 2 is a useless table because all it tells us is that “The oak seedlings grew at temperatures between 20 and 40°C; no measurable growth occurred at temperatures below 20°C or above 40°C.”

# Something to avoid in Tables

Type of failure	$\alpha$ [-]	$\beta$ [-]
Local Failure	$\alpha = (-1.8i_0 + 1.18)D_{50}/d_{50}^{(-0.48i_0 - 0.30)}$	$\beta = (-1.5i_0 + 1.06)D_{50}/d_{50}^{(-1.32i_0 - 0.01)}$
Global Failure	$\alpha = (-1.8i_0 + 1.13)D_{50}/d_{50}^{(-0.66i_0 - 0.24)}$	$\beta = (-1.2i_0 + 0.9)D_{50}/d_{50}^{(-1.38i_0 - 0.03)}$

Nozzle	Erosion rate (pits/cm <sup>2</sup> )					
	Time (seconds)					
	60	120	180	240	300	1200
20°-conical	38,56	38,56	46,00	99,16	90,13	154,77
132°-conical	59.31	78.70	80.57	128.60	151.16	430.25
Circular	55.99	151.89	163.23	110.77	171.38	330.92
Commercial	10.19	29.74	34.63	46.86	51.34	58.67

# Something to avoid in Tables

Test series	Bottom Rack			Q(L/s)	Qi(L/s)	Qr
	Dmm	E%	S(%)			
A (Clear water)	8	30	10	24.5	11	0.45
	8	35		24.5	12.8	0.52
	8	40		24.5	13.6	0.56
	8	30	20	24.5	14	0.57
	8	35		24.5	15.2	0.62
	8	40		24.5	16	0.65
	8	30	30	24.5	14.8	0.61
	8	35		24.5	17.8	0.73
	8	40		24.5	19	0.78
	8	30	40	24.5	10.2	0.42
	8	35		24.5	11	0.45
	8	40		24.5	12	0.49



# Something to avoid in Tables

Material	$d_{16}$	$d_{50}$	$d_{84}$	$d_{90}$	$\sigma$	$\rho_s$
	[m]	[m]	[m]	[m]	[—]	[kg/m <sup>3</sup> ]
1	2	3	4	5	6	7
$n=2$	0.0033	0.0053	0.0103	0.0105	1.8	2752
$n=3$	0.0018	0.0051	0.0136	0.0168	2.8	2483



# Figure, Pictures and Diagrams

Graphs, flow charts, diagrams, drawings, maps, and photographs are some of the different types of illustrations one may submit as part of a manuscript.

**Each illustration should be thoughtfully designed or selected in order to show a relationship of ideas, data, or objects that would be difficult to describe precisely or completely using words alone.**

Figures should use the same system of units as the accompanying text; that is, generally, figures should be prepared using SI units. The exception would be a figure that accompanies a case study or problem that is presented only in customary units. In either case, the units should be clearly marked on the illustration.

# Figure, Pictures and diagrams: “good” vs “bad”



a. Flow is slowly introduced into flume.



b. Scour at unprotected pier after test at  $2V_{crit}$  test. Note dune field.

Figure 2. Indoor flume tests showing typical initial and final conditions.

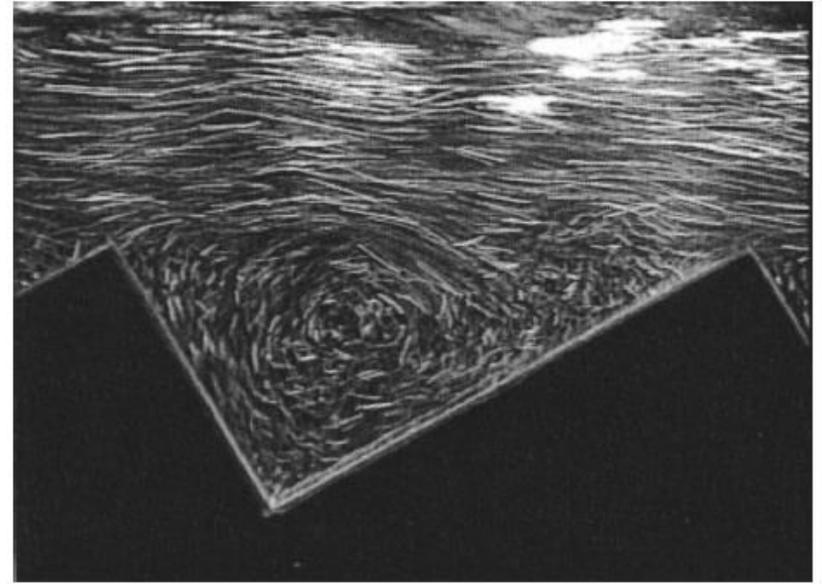


a. Riprap after  $1V_{crit}$  test.



b. Riprap after  $2V_{crit}$  test. Note particle displacement when areal extent is insufficient.

Figure 3. Indoor flume tests of standard riprap.



a. Placing partially-grouted riprap. Note spot-grouting technique.



b. Partial grout after  $2V_{crit}$  test.

Figure 4. Indoor flume tests of partially grouted riprap.



a. Placing articulating concrete blocks. Note toedown depth at perimeter of system.



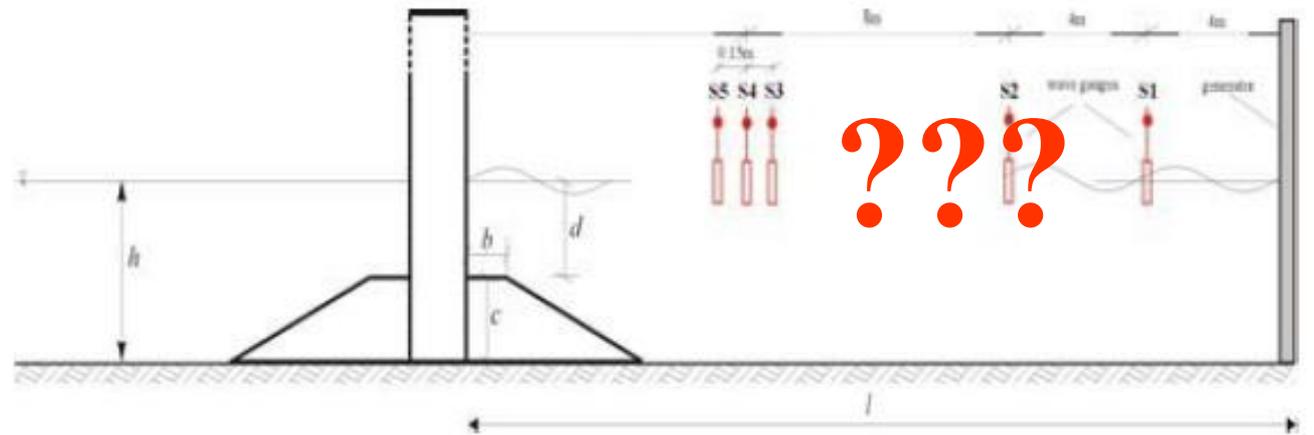
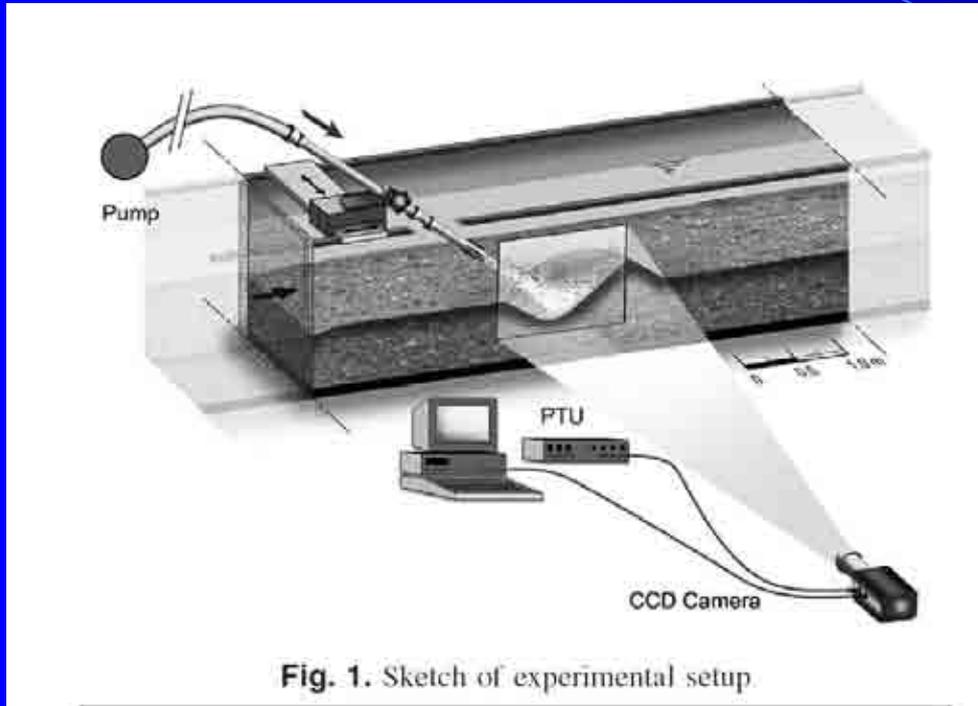
b. Articulating concrete blocks after  $2V_{crit}$  run. Note dune field and loss of blocks on the right side of pier.

Figure 5. Indoor flume tests of articulating concrete blocks.

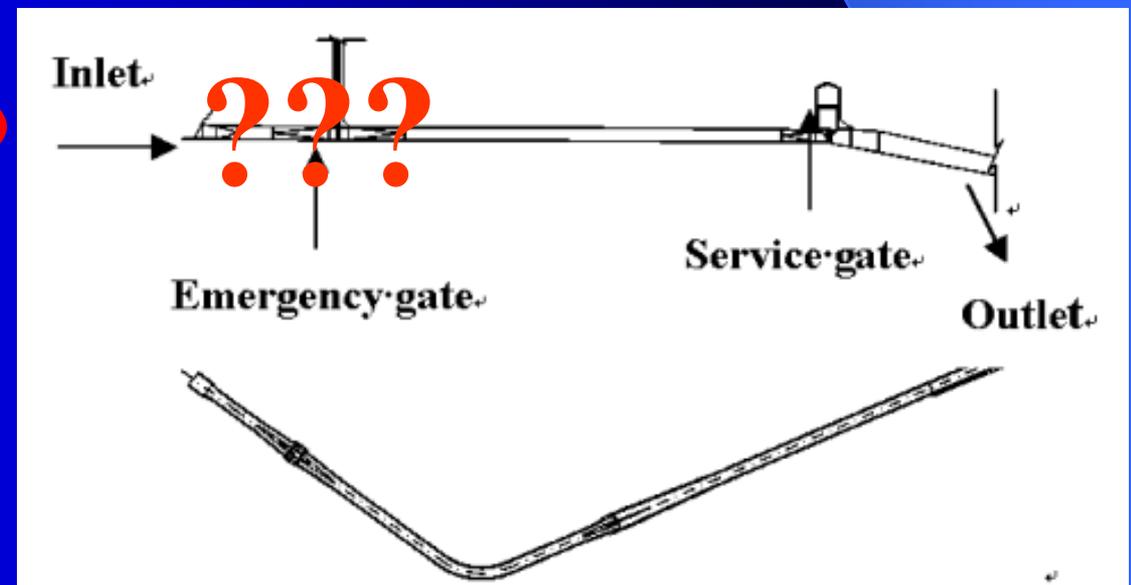
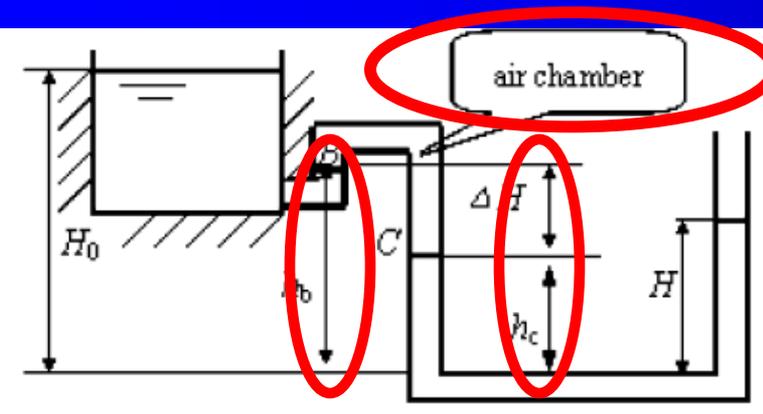
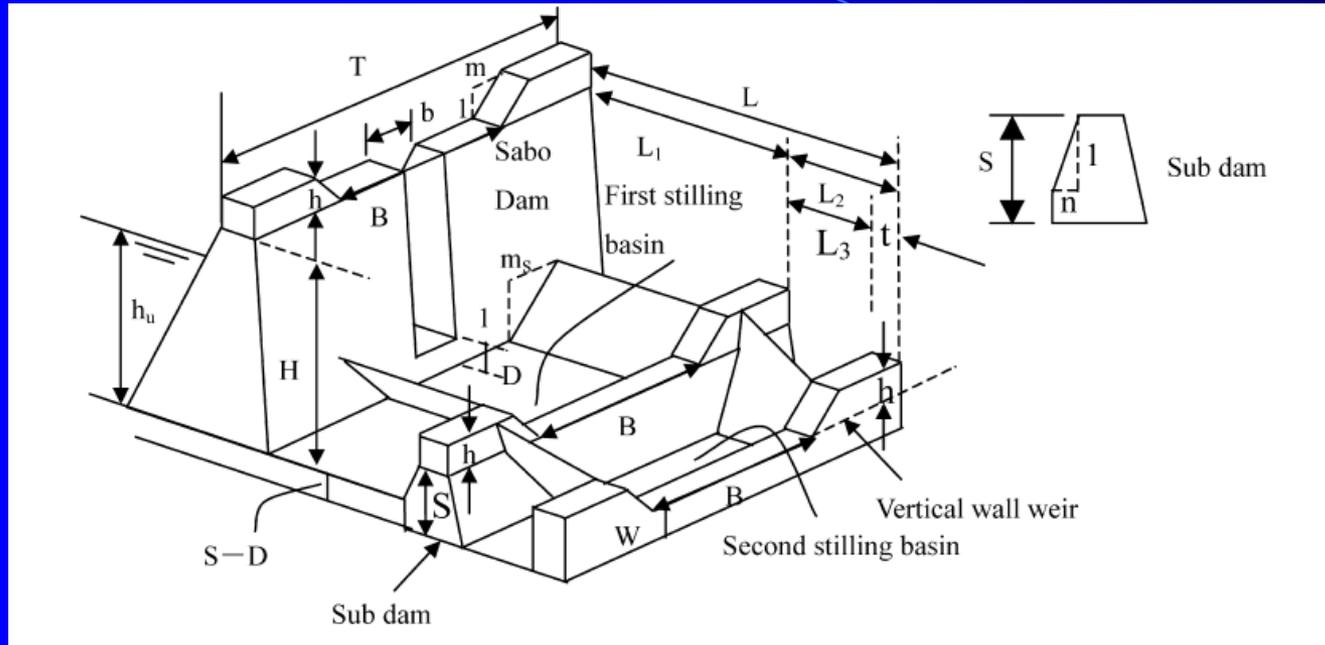


Fig. 1. Final part of block ramp  $1V:4H$  configuration in the 0.35 m wide flume

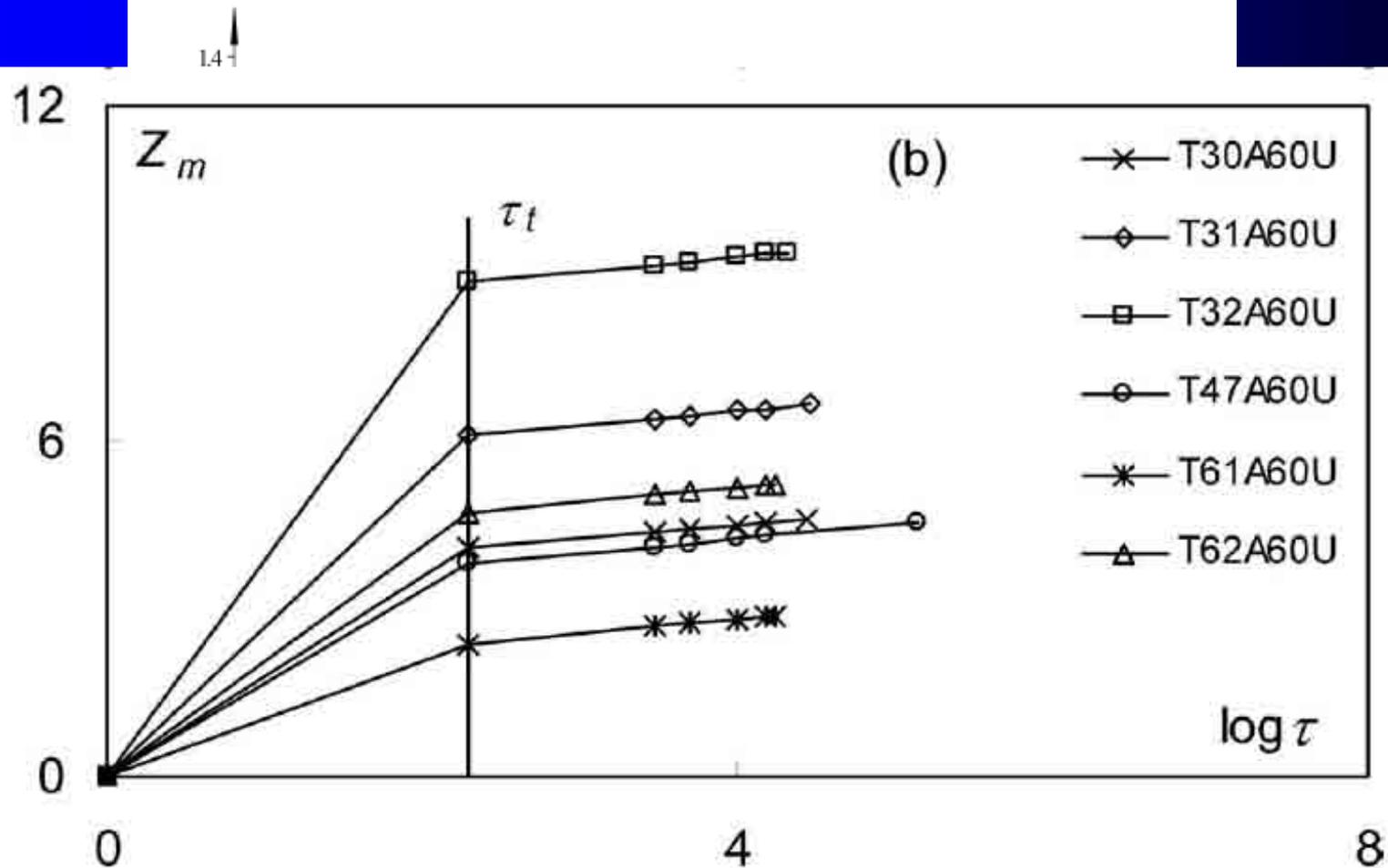
# Figure, Pictures and diagrams: “good” vs “bad”



# Figure, Pictures and diagrams: “good” vs “bad”



# Figure, Pictures and diagrams: “good” vs “bad”



**Fig. 10.**  $Z_m(\log \tau)$  for:  $\alpha=60^\circ$  and (a) S-jets; (b) U-jets

Dimensionless Parameters

Lg/L

# Figure, Pictures and diagrams: "good" vs "bad"

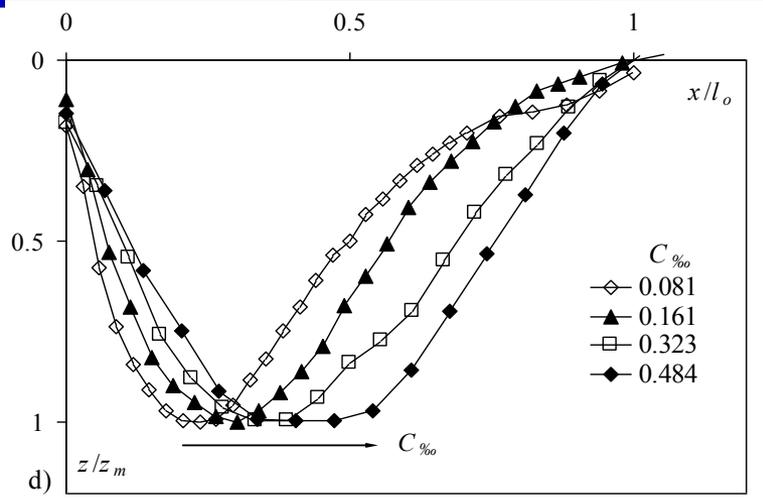
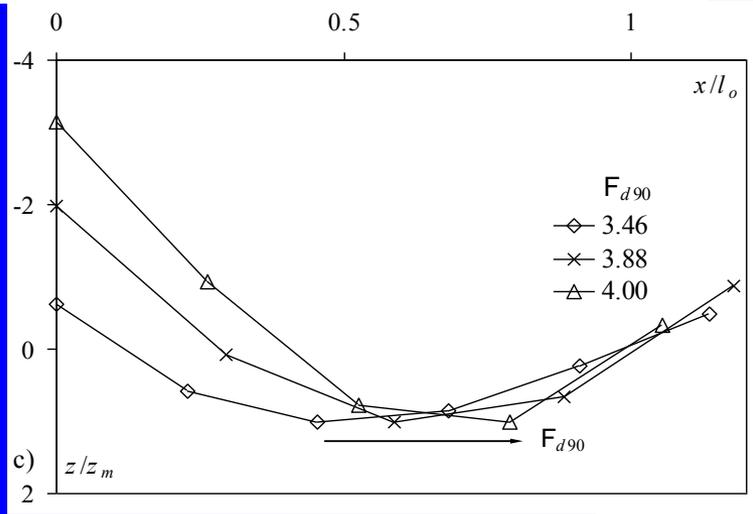
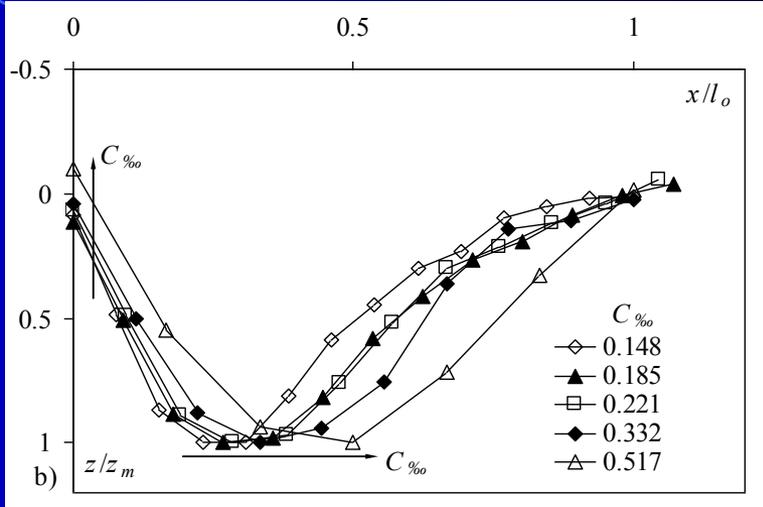
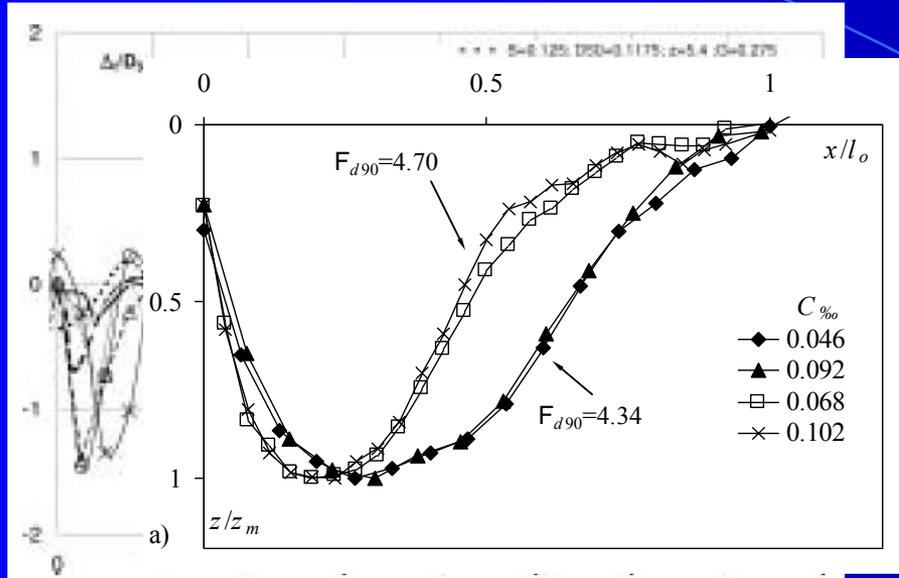
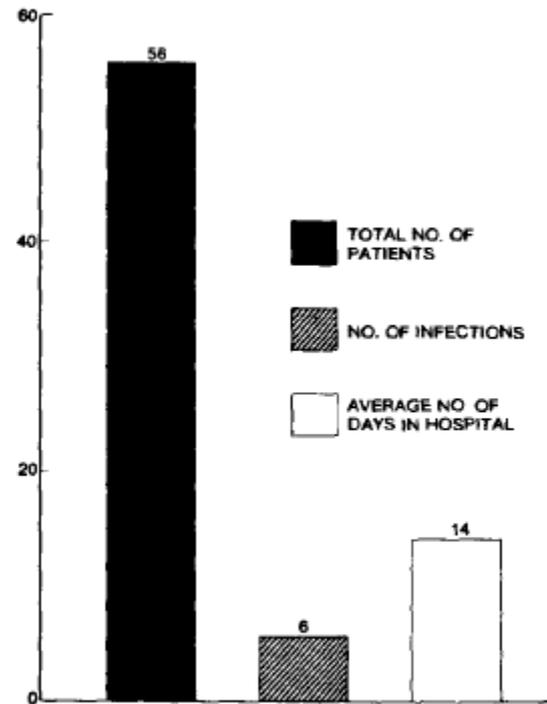


Fig.5 Vibration-duration curve of shuikou valve

An example of an unneeded bar graph is shown in Fig. 1. This figure could be replaced by one sentence in the text: "Among the test group of 56 patients who were hospitalized for an average of 14 days, 6 acquired infections."



**Figure 1. Incidence of hospital-acquired infections.**

(Courtesy of Erwin F. Lessel.)

# Ethics

## Publishing responsibilities of authors

The publication of an article in a peer-reviewed journal is an essential building block in the development of a coherent and respected network of knowledge.

It is a direct reflection of the quality of work of the author and the institutions that support them.

Peer-reviewed articles support and embody the scientific method.  
**It is therefore important to agree upon standards of expected ethical behavior.**

# Conflict of Interest

**Transparency and objectivity are essential in scientific research and the peer review process.**

When an investigator, author, editor, or reviewer has a financial/personal interest or belief that could affect his/her objectivity, or inappropriately influence his/her actions, a potential conflict of interest exists. Such relationships are also known as dual commitments, competing interests, or competing loyalties.<sup>1,2</sup>

The most obvious conflicts of interest are financial relationships such as:

- Direct: employment, stock ownership, grants, patents
- Indirect: honoraria, consultancies to sponsoring organizations, mutual fund ownership, paid expert testimony<sup>2</sup>

Undeclared financial conflicts may seriously undermine the credibility of the journal, the authors, and the science itself.<sup>2</sup> An example might be an investigator who owns stock in a pharmaceutical company that is commissioning the research.

Conflicts can also exist as a result of personal relationships, academic competition, and intellectual passion.<sup>2</sup> An example might be a researcher who has:

- A relative who works at the company whose product the researcher is evaluating
- A self-serving stake in the research results (e.g. potential promotion/career advancement based on outcomes)
- Personal beliefs that are in direct conflict with the topic he/she is researching

Not all relationships represent a true conflict of interest—conflicts can be potential or actual.<sup>1,2</sup> Some considerations: *does the person's association with the organization interfere with their ability to carry out the research or paper without bias?*<sup>1</sup> And: *would this relationship, when later revealed, make a reasonable reader feel deceived or misled?*<sup>3</sup>

Full disclosure about a relationship that could constitute a conflict—even if the person doesn't believe it affects their judgment—should be reported to the institution's ethics group and to the journal editor to which a paper is submitted. All publishers require disclosure in the form of a cover letter and/or footnote in the manuscript.

A journal may use disclosures as a basis for editorial decisions and may publish them if they are believed to be important to readers in judging the manuscript. Likewise, the journal may decide not to publish on the basis of the declared conflict.

According to the U.S. Office of Research Integrity, having a conflict of interest is not in itself unethical, and there are some that are unavoidable.<sup>1</sup> Full transparency is always the best course of action, and, if in doubt, disclose.

**Naming authors on a scientific paper ensures that the appropriate individuals get credit, and are accountable, for the research. Deliberately misrepresenting a scientist's relationship to their work is considered to be a form of misconduct that undermines confidence in the reporting of the work itself.<sup>1</sup>**

While there is no universal definition of authorship,<sup>1</sup> an "author" is generally considered to be an individual who has made a significant intellectual contribution to the study.<sup>2</sup>

According to the guidelines for authorship established by the International Committee of Medical Journal Editors (ICMJE), "All persons designated as authors should qualify for authorship, and all those who qualify should be listed."<sup>2</sup>

Three basic criteria must collectively be met to be credited as an author:<sup>2</sup>

- Substantial contribution to the study conception and design, data acquisition, analysis, and interpretation.
- Drafting or revising the article for intellectual content.
- Approval of the final version.

The following are some general guidelines, which may vary from field to field:

- The order of authorship should be "a joint decision of the coauthors".<sup>2</sup>
- Individuals who are involved in a study but don't satisfy the journal's criteria for authorship, should be listed as "Contributors" or "Acknowledged Individuals". Examples include: assisting the research by providing advice, providing research space, departmental oversight, and obtaining financial support.<sup>2,3</sup>
- For large, multi-center trials, the list of clinicians and centers is typically published, along with a statement of the individual contributions made. Some groups list authors alphabetically, sometimes with a note to explain that all authors made equal contributions to the study and the publication.<sup>1,2</sup>

Three types of authorship are considered unacceptable:

- "Ghost" authors, who contribute substantially but are not acknowledged (often paid by commercial sponsors);
- "Guest" authors, who make no discernible contributions, but are listed to help increase the chances of publication;
- "Gift" authors, whose contribution is based solely on a tenuous affiliation with a study.<sup>1,3,4</sup>

# Plagiarism

One of the most common types of publication misconduct is plagiarism—when one author deliberately uses another's work without permission, credit, or acknowledgment. Plagiarism takes different forms, from literal copying to paraphrasing some else's work and can include:

Data    Words and Phrases    Ideas and Concepts

Plagiarism has varying different levels of severity, such as:

- How much of someone's work was taken—a few lines, paragraphs, pages, the full article?
- What was copied—results, methods, or introduction section?

When it comes to your work, always remember that crediting the work of others (including your advisor's or your own previous work) is a critical part of the process. You should always place your work in the context of the advancement of the field, and acknowledge the findings of others on which you have built your research.

# Research Fraud

Research fraud is publishing data or conclusions that were not generated by experiments or observations, but by invention or data manipulation. There are two kinds in research and scientific publishing:

## Fabrication

Making up research data and results, and recording or reporting them.<sup>1</sup>

## Falsification

Manipulating research materials, images, data, equipment, or processes. Falsification includes changing or omitting data or results in such a way that the research is not accurately represented.<sup>1</sup> A person might falsify data to make it fit with the desired end result of a study.

Both fabrication and falsification are serious forms of misconduct because they result in a scientific record that does not accurately reflect observed truth.<sup>2</sup>

Certain instances of fraud can be easy to spot—for example if a referee knows for a fact that a particular laboratory does not have the facilities to conduct the research that was published. Or, if it's obvious an image looks manipulated or is made up from several different experiments. The data from the control experiments might be "too perfect". In such situations, an investigation would be conducted to determine if an act of fraud was committed.<sup>3</sup> Digital image enhancement is acceptable. However, a positive relationship between the original data and the resulting image must be maintained to avoid creating unrepresentative data or the loss of meaningful signals. If a figure has been significantly manipulated, you must note the nature of the enhancements in the figure legend or in the 'Materials and Methods' section.

What about unintentional error that comes across as misconduct? According to the U.S. Office of Research Integrity, research misconduct does not include honest error or differences of opinion.<sup>1</sup> But it's best never to have the integrity of your work come into question. As a researcher and author, it is essential to understand what constitutes appropriate data management (including data collection, retention, analysis and reporting) in accordance with responsible conduct of research.<sup>4</sup>

To help prevent fraud, most publishers have strict policies on manipulation of images and access to the reported data. It's a good idea to familiarize yourself with them before you submit a paper.

Some general guidelines (which may vary from field to field, publisher to publisher) include:<sup>5</sup>

### Manipulation of images

- Images may be manipulated for improved clarity only.
- No specific feature within an image may be enhanced, obscured, moved, removed, or introduced.
- Adjustments of brightness, contrast, or color balance are usually acceptable as long as they do not obscure or eliminate any information present in the original.

### Data access & retention

- Authors may be asked to provide the raw data in connection with a paper for editorial review. Therefore all data for a specific paper should be retained for a reasonable time after publication. There should be named custodian for the data.
- Studies undertaken in human beings, e.g. clinical trials have specific guidelines about the duration of data retention.

# Simultaneous Submission/ Multiple, Duplicate Publication



ethics  
IN RESEARCH & PUBLICATION



**Authors have an obligation to make sure their paper is based on original—never before published—research. Intentionally submitting or re-submitting work for duplicate publication is considered a breach of publishing ethics.**

- Simultaneous submission occurs when a person submits a paper to different publications at the same time, which can result in more than one journal publishing that particular paper.
- Duplicate/multiple publication occurs when two or more papers, without full cross-reference, share essentially the same hypotheses, data, discussion points, and/or conclusions.<sup>1</sup> This can occur in varying degrees: literal duplication, partial but substantial duplication, or even duplication by paraphrasing.<sup>2</sup>

One of the main reasons duplicate publication of original research is considered unethical, is that it can result in "inadvertent double-counting or inappropriate weighting of the results of a single study, which distorts the available evidence".<sup>3</sup>

There are certain situations in which the publishers of two journals might agree *in advance* to use the "duplicate work".<sup>3</sup> These include:

- Combined editorials (e.g. about a plagiarism case involving the two journals).
- (Clinical) guidelines, position statements.
- Translations of articles—provided that prior approval has been granted by the first Publisher, and that full and prominent disclosure of its original source is given at the time of submission.<sup>2</sup>

The main rule of thumb: articles submitted for publication must be original and must not have been submitted to any other publication. At the time of submission, authors must disclose any details of related papers (also when in a different language), similar papers in press, and translations.

While the boundaries around duplicate publication may vary from field to field, all publishers have requirements for submitting papers. It's a good idea to make sure you fully understand them to avoid violating the process.

# Peer review process

The central mechanism of scientific quality management is the peer review process.

Since submitted papers are reviewed by peers of the authors in the respective field's scientific community, this process is referred to as peer review.

**Peer:** Someone “of equal standing with another ... especially belonging to the same societal group...or [having the same] status”

**Review:**  
A critical inspection or examination

# Peer review process

Scholarly peer review (also known as **refereeing**) is the process of subjecting an author's **scholarly** work, research, or **ideas** to the scrutiny of others who are **experts** in the same field.

Peer review requires a community of experts in a given (and often narrowly defined) field, who are qualified and able to perform impartial review.

Impartial review, especially of work in less narrowly defined or inter-disciplinary fields, may be difficult to accomplish; and the significance (good or bad) of an idea may never be widely appreciated among its contemporaries.

Common to serious peer reviewing practices is the fact that authors do not know the identity of their reviewers (blind review); depending on the editorial policy it is also common practice that reviewers should not know the name(s) of the author(s) of the paper (double blind review)



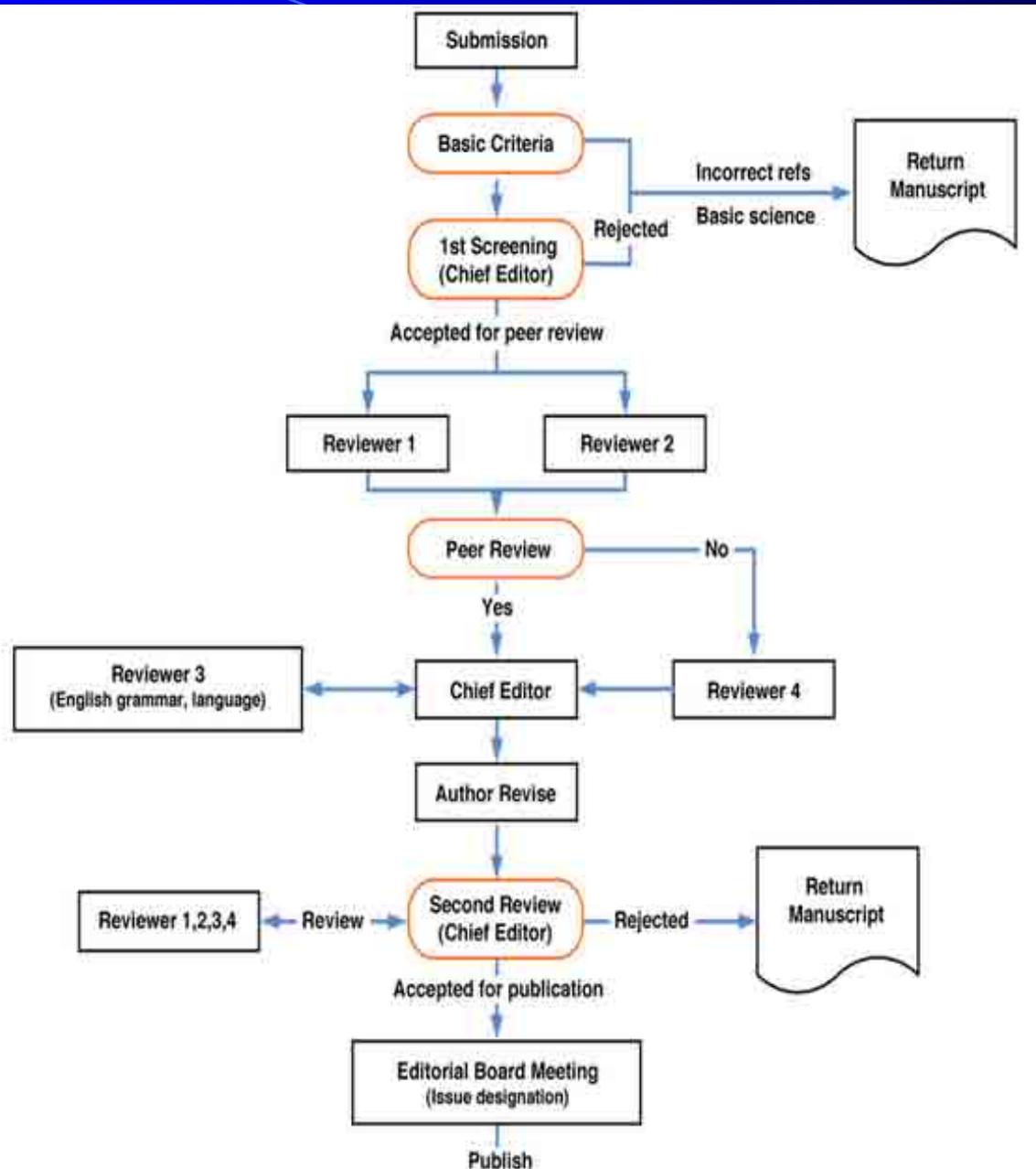
# Peer review process

A reviewer is required to answer to the following questions:

1. Does the manuscript present a specific, easily identifiable advance in knowledge? Is it applicable and useful to the profession?
2. Has the information already been published elsewhere, either wholly or in part?
3. Is the subject matter within the scope of the journal? Or is it better suited to another journal?
4. Do the title and abstract accurately describe the contents? Does the abstract include all of the main findings of the study?
5. Is the review of literature limited to that framing the new knowledge? Are all references pertinent and complete?
6. Is the methodology sufficiently well explained that someone else knowledgeable about the field could repeat the study?
7. Is each figure and table necessary to the understanding of the conclusions? Can any be omitted without compromising the paper's message?
8. Are the results soundly interpreted and related to existing knowledge on the topic?
9. Are the conclusions sound and justified? Do they follow logically from data presented?
10. Do all elements of the manuscript relate logically to the study's statement of purpose?
11. Can the paper be shortened without compromising its message?



# Peer review process flowchart (Elsevier)



## An example of bad review:

Associate editor to Author:

The associate editor has considered the potential suitability of the manuscript for publication in the Journal .....

Regretfully, the overall impression is not encouraging on several accounts despite the authors' extensive experimental work.

1. Many researchers have studied the characteristics of hydraulic jumps on smooth and rough surfaces in details. The authors also make a limited reference to a few papers. In particular, the formation of the hydraulic jump on sloping beds is addressed by: Nikmehr Saman (2010). Hydraulic Jumps on Adverse Slope in Two Cases of Rough and Smooth Bed. Research Journal of Applied Sciences, Engineering and Technology. Two other interesting works are:

Neluwala. Et al. (2012). Characteristics of Hydraulics Jumps over Rough Horizontal Beds. Civil Engineering Research Exchange Symposium 2012

# Characteristics of Hydraulics Jumps over Rough Horizontal Beds

Research Journal of Applied Sciences, Engineering and Technology 2(1): 19-22, 2010

ISSN: 2040-7467

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Submitted Date: August 03, 2009

Accepted Date: August 19, 2009

Published Date: January 05, 2010

## Hydraulic Jumps on Adverse Slope in Two Cases of Rough and Smooth Bed

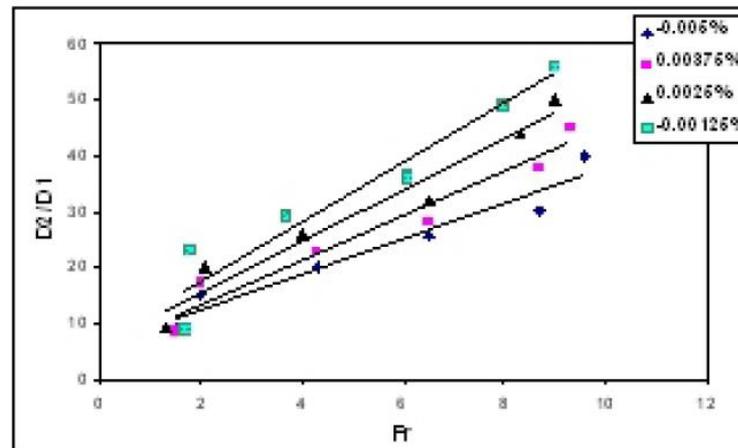


Fig 4: Variation of sequent depth ratio with inflow Froude number over smooth bed

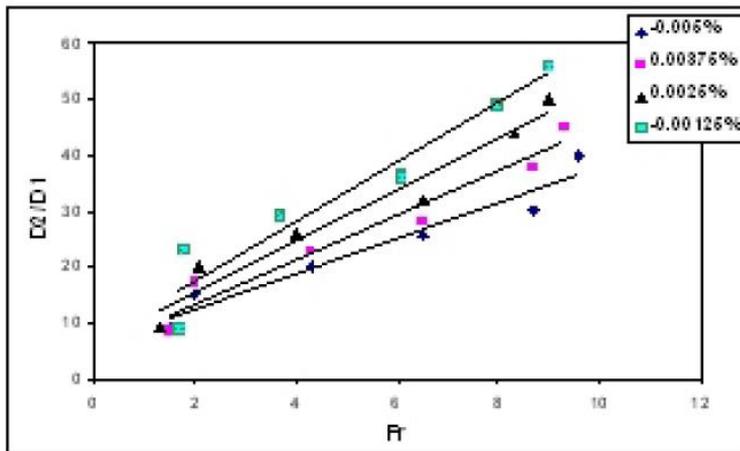


Fig 4: Variation of sequent depth ratio with inflow Froude number over smooth bed

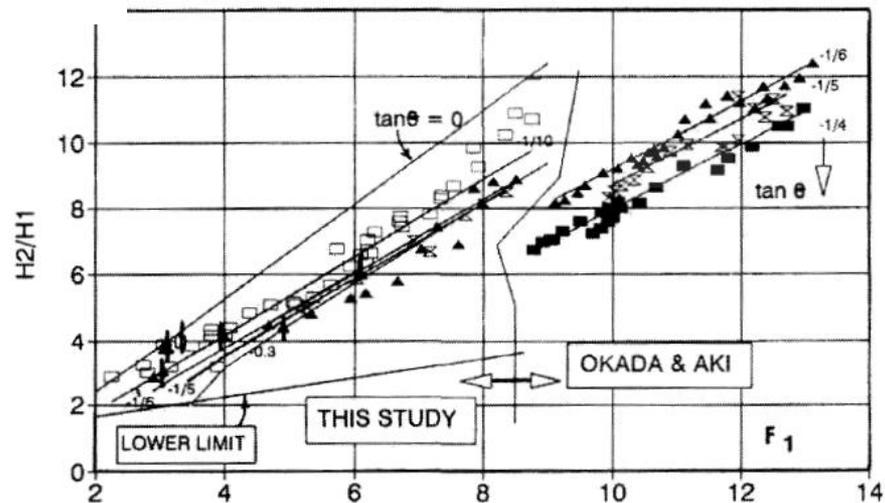


Fig. 4. Experimental and theoretical sequent depth ratios for limiting and stabilized adverse hydraulic jumps respectively from this study and Okada and Aki (1959).

Legend: +  $\tan \theta = 0.0$ ;  $\square$   $\tan \theta = -0.1$ ;  $\blacktriangle$   $\tan \theta = -1/6$ ;  $\nabla$   $\tan \theta = -1/5$ ;  $\blacksquare$   $\tan \theta = -1/4$ ; | verification data; — momentum theory.

Rapport des hauteurs conjuguées expérimentales et théoriques pour des cas limites et des cas stabilisés de ressaut en contre-pente, provenant de cette étude ainsi que de celle de Okada et Aki (1959).

# Impact factor

The **impact factor**, often abbreviated **IF**, is a measure reflecting the average number of citations to articles published in science and social science journals.

It is frequently used as a proxy for the relative importance of a journal within its field, journals with higher impact factors deemed to be more important than those with lower ones. The impact factor was devised by Eugene Garfield, the founder of the Institute for Scientific Information (ISI), now part of Thomson Reuters. Impact factors are calculated yearly for those journals that are indexed in Thomson Reuter's *Journal Citation Reports*.

The IF is used to compare different journals within a certain field. The Web of Knowledge indexes 9000 science and social science journals from 60 countries and the results are widely (though not freely) available. In addition, the IF is an objective measure

# Journal Ranking (ISI Web of Knowledge)

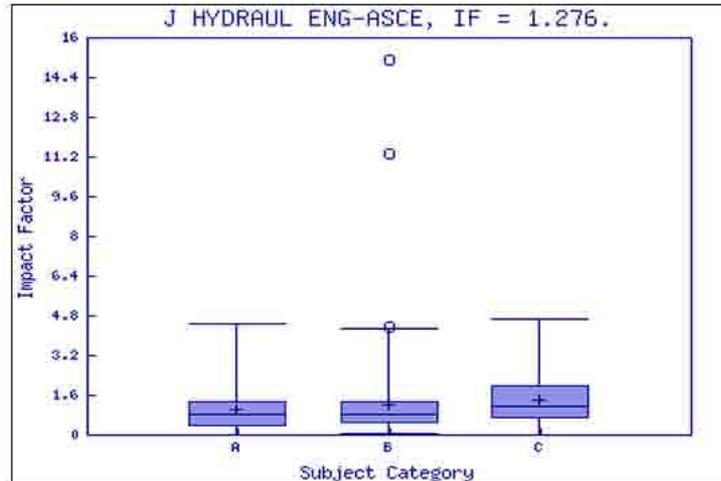
## Example 1: JOURNAL OF HYDRAULIC ENGINEERING-ASCE

Category Name	Total Journals in Category	Journal Rank in Category	Quartile in Category
ENGINEERING, CIVIL	122	33	Q2
ENGINEERING, MECHANICAL	125	33	Q2
WATER RESOURCES	80	37	Q2

### Category Box Plot

For 2012, the journal **JOURNAL OF HYDRAULIC ENGINEERING-ASCE** has an Impact Factor of **1.276**.

This is a box plot of the subject category or categories to which the journal has been assigned. It provides information about the distribution of journals based on Impact Factor values. It shows median, 25th and 75th percentiles, and the extreme values of the distribution.



#### Key

- A - ENGINEERING, CIVIL
- B - ENGINEERING, MECHANICAL
- C - WATER RESOURCES

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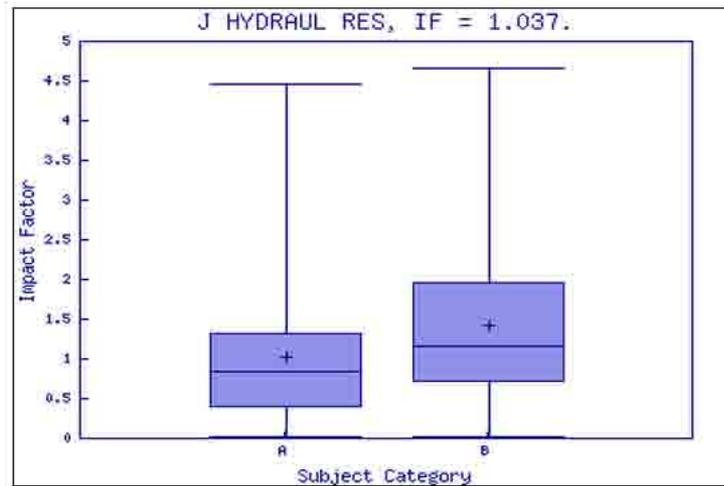
# Example 2: JOURNAL OF HYDRAULIC RESEARCH

Category Name	Total Journals in Category	Journal Rank in Category	Quartile in Category
ENGINEERING, CIVIL	122	47	Q2
WATER RESOURCES	80	47	Q3

## Category Box Plot

For 2012, the journal **JOURNAL OF HYDRAULIC RESEARCH** has an Impact Factor of **1.037**.

This is a box plot of the subject category or categories to which the journal has been assigned. It provides information about the distribution of journals based on Impact Factor values. It shows median, 25th and 75th percentiles, and the extreme values of the distribution.



Key  
A - ENGINEERING, CIVIL  
B - WATER RESOURCES

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Thank you

# Altro materiale

# Authors Rights

**They are generally defined by the publisher's copyright policy.**

## **1) The case of Elsevier:**

For Elsevier proprietary titles, the type of copyright agreement used depends on the author's choice of publication:

For subscription articles: These rights are determined by a copyright transfer, where authors retain scholarly rights to post and use their articles.

For open access articles: These rights are determined by an exclusive license agreement, which applies to all our open access content.

In both cases, the fundamental rights needed to publish and distribute an article remain the same and Elsevier authors will be able to use<sub>57</sub> their articles for a wide range of scholarly purposes.

# Authors Rights

Authors can use either their accepted author manuscript or final published article for:

Use at a conference, meeting or for teaching purposes

Internal training by their company

Sharing individual articles with colleagues for their research use\* (also known as 'scholarly sharing')

Use in a subsequent compilation of the author's works

Inclusion in a thesis or dissertation

Reuse of portions or extracts from the article in other works

Preparation of derivative works (other than for commercial purposes)

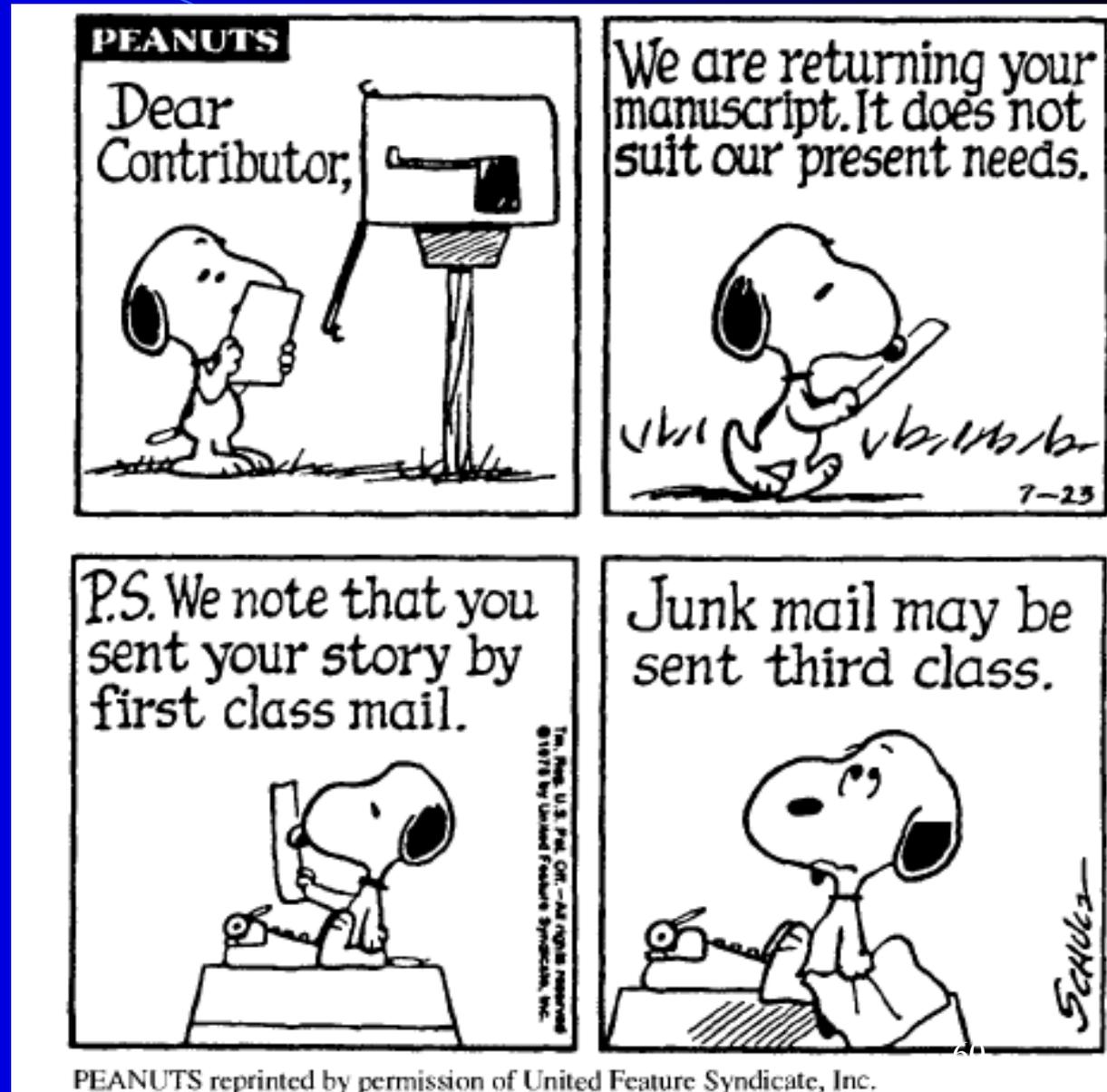
# Authors Rights

## 2) The case of ASCE:

- Authors retain the right to revise, adapt, prepare derivative works, present orally, or distribute the work provided that all such use is for the personal noncommercial benefit of the author(s) and is consistent with any prior contractual agreement between the undersigned and/or coauthors and their employer(s).
- In all instances where the work is prepared as a “work made for hire” for an employer, the employer(s) of the author(s) retain(s) the right to revise, adapt, prepare derivative works, publish, reprint, reproduce, and distribute the work provided that such use is for the promotion of its business enterprise and does not imply the endorsement of ASCE.
- No proprietary right other than copyright is claimed by ASCE.

# If it is not the right journal.....

Robert A. Day (1998).  
How to write & publish  
a scientific paper. 5<sup>th</sup>  
Edition, ORYX Press



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3. Be careful with commonly confused words:

Temperature has an *effect* on the reaction.

Temperature *affects* the reaction.

I used solutions in various concentrations. (The solutions were 5 mg/ml, 10 mg/ml, and 15 mg/ml)

I used solutions in varying concentrations. (The concentrations I used changed; sometimes they were 5 mg/ml, other times they were 15 mg/ml.)

Less food (can't count numbers of food)

Fewer animals (can count numbers of animals)

A large amount of food (can't count them)

A large number of animals (can count them)

The erythrocytes, which are in the blood, contain hemoglobin.

The erythrocytes that are in the blood contain hemoglobin. (Wrong.

This sentence implies that there are erythrocytes elsewhere that don't contain hemoglobin.)

## EDIT YOUR PAPER!!!

A major part of any writing assignment consists of re-writing.

### Write accurately

1. Scientific writing must be accurate. Although writing instructors may tell you not to use the same word twice in a sentence, it's okay for scientific writing, which must be accurate. (A student who tried not to repeat the word "hamster" produced this confusing sentence: "When I put the hamster in a cage with the other animals, the little mammals began to play.")

2. Make sure you say what you mean.

*Instead of:* The rats were injected with the drug. (sounds like a syringe was filled with drug and ground-up rats and both were injected together)

*Write:* I injected the drug into the rat.

## Write clearly

1. Write at a level that's appropriate for your audience.

*"Like a pigeon, something to admire as long as it isn't over your head." Anonymous*

2. Use the active voice. It's clearer and more concise than the passive voice.

Instead of: An increased appetite was manifested by the rats and an increase in body weight was measured.

Write: The rats ate more and gained weight.

3. Use the first person.

Instead of: It is thought

Write: I think

Instead of: The samples were analyzed

Write: I analyzed the samples

## Write succinctly

1. Use verbs instead of abstract nouns

Instead of: take into consideration

Write: consider

2. Use strong verbs instead of "to be"

Instead of: The enzyme was found to be the active agent in catalyzing...

Write: The enzyme catalyzed...

3. Use short words.

*"I would never use a long word where a short one would answer the purpose. I know there are professors in this country who 'ligate' arteries. Other surgeons tie them, and it stops the bleeding just as well."*

*Oliver Wendell Holmes, Sr .*

Instead of:

possess

sufficient

utilize

demonstrate

assistance

terminate

Write:

have

enough

use

show

help

end

## Guide to Conflict of Interest and How to Prevent It\*

Action	What it is	Is it unethical?	What should you do?
An undisclosed relationship that may pose a conflict of interest	Neglecting to disclose a relationship with a person or organization that could affect one's objectivity, or inappropriately influence one's actions	<b>Yes.</b>  Some relationships do not necessarily present a conflict. Participants in the peer-review and publication process must disclose relationships that could be viewed as potential conflicts of interest <sup>2</sup>	<ul style="list-style-type: none"> <li>■ When submitting a paper, state explicitly whether potential conflicts do or do not exist</li> <li>■ Indicate this in the manuscript on a conflict-of-interest notification page, with additional detail, if necessary, in a cover letter with the manuscript</li> <li>■ Investigators must disclose potential conflicts to study participants and should state in the manuscript whether they have done so</li> <li>■ Reviewers must also disclose any conflicts that could bias their opinions of the manuscript<sup>2</sup></li> </ul>
An undisclosed funding source and its role	Neglecting to disclose the role of the study sponsor(s), if any, in study design; in the collection, analysis, and interpretation of data; in the writing of the report; and in the decision to submit the paper for publication	<b>Yes.</b>  Researchers should not enter into agreements that interfere with their access to all of the data and their ability to analyze them independently, and to prepare and publish manuscripts. If funding has been provided, all sources must be declared <sup>2</sup>	<ul style="list-style-type: none"> <li>■ When submitting a paper, a declaration (with the heading 'Role of the funding source') should be made in a separate section of the text and placed before the References</li> <li>■ Describe the role of the study sponsor(s), if any, in study design; in the collection, analysis, and interpretation of data; in the writing of the report; and in the decision to submit the paper for publication</li> <li>■ Editors may request that authors of a study funded by an agency with a proprietary or financial interest in the outcome sign a statement, such as "I had full access to all of the data in this study and I take complete responsibility for the integrity of the data and the accuracy of the data analysis."<sup>2</sup></li> </ul>

\*When in doubt, always consult with your professor, advisor, or someone in a position of authority who can guide you to the right course of action.

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3. Committee on Publication Ethics (COPE). Committee on Publication Ethics (COPE). Guidelines on Good Publication Practice. 1999. Available at: <http://publicationethics.org/static/1999/1999pdf13.pdf>. Accessed on September 6, 2012.



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