

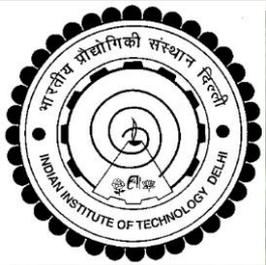
स्वागतम्

and
Present

Welcome

How to Write Technical Papers?

(12th since 2011)

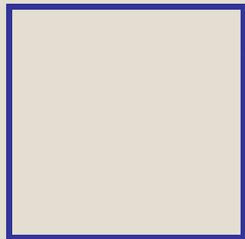


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Jan. 03'18@GPS





Acknowledgement

How to Get Published In Scientific Journals Mechanism and Machine Theory

Andres Kecskemethy (Editor in Chief)
Desiree DeMyer (Publishing Editor)
September 8, 2008, St. Petersburg
editor@mechmt.com /
D.DeMyer@elsevier.com

What is Scientific (Research) Paper?

- Any systematic investigation towards increasing the sum of knowledge can be termed as research.
- Writing of organized analysis of a subject to record and disseminate information or knowledge or to present a point of view on a selected topic is research paper.

[Ref: Raman, M. and Sharma, S., 2004, *Technical Communication: Principles and Practice*, Oxford, New Delhi (~Rs.300)]

Objectives

- What steps do I need to take before I write my paper?
- How can I ensure I am using proper scientific language?
- How do I build up my article properly?
- How to make a good presentation?

Determine if you are ready to publish

You should consider publishing if you have information that advances understanding in a certain scientific field

This could be in the form of:

- Presenting new, original results or methods
- Rationalizing, refining, or reinterpreting published results
- Reviewing or summarizing a particular subject or field



If you are ready to publish, a strong manuscript is what is needed next

What is a strong manuscript?

- Has a clear, useful, and exciting message
- Presented and constructed in a logical manner
- Reviewers and editors can grasp the scientific significance easily



**Editors and reviewers are all busy scientists –
make things easy to save their time**

Decide which type of manuscript is most appropriate

- **Conference papers**
- **Full articles/Original articles**
- **Review papers/perspectives**

Conference Paper

- Excellent for disseminating early or in-progress research findings
- Typically 5-10 pages, 3 figures, 15 references
- Draft and submit the paper to conference organisers
- Good way to start a scientific research career

Sample full article titles:

- “Global Warming Prevention Technologies in Japan” at 6th Greenhouse Gas Control Technologies International Conference
- “Power consumption in slurry systems” at 10th European Conference on Mixing

Full (Journal) Article

- Standard for disseminating completed research findings
- Typically 8-10 pages, 5 figures, 25 references
- Draft and submit the paper to appropriate journal
- Good way to build a scientific research career

Sample full article titles:

- “Hydrodynamic study of a liquid/solid fluidized bed under transverse electromagnetic field”
- “Retinoic acid regulation of the Mesp–Ripply feedback loop during vertebrate segmental patterning”
- “Establishing a reference range for bone turnover markers in young, healthy women”

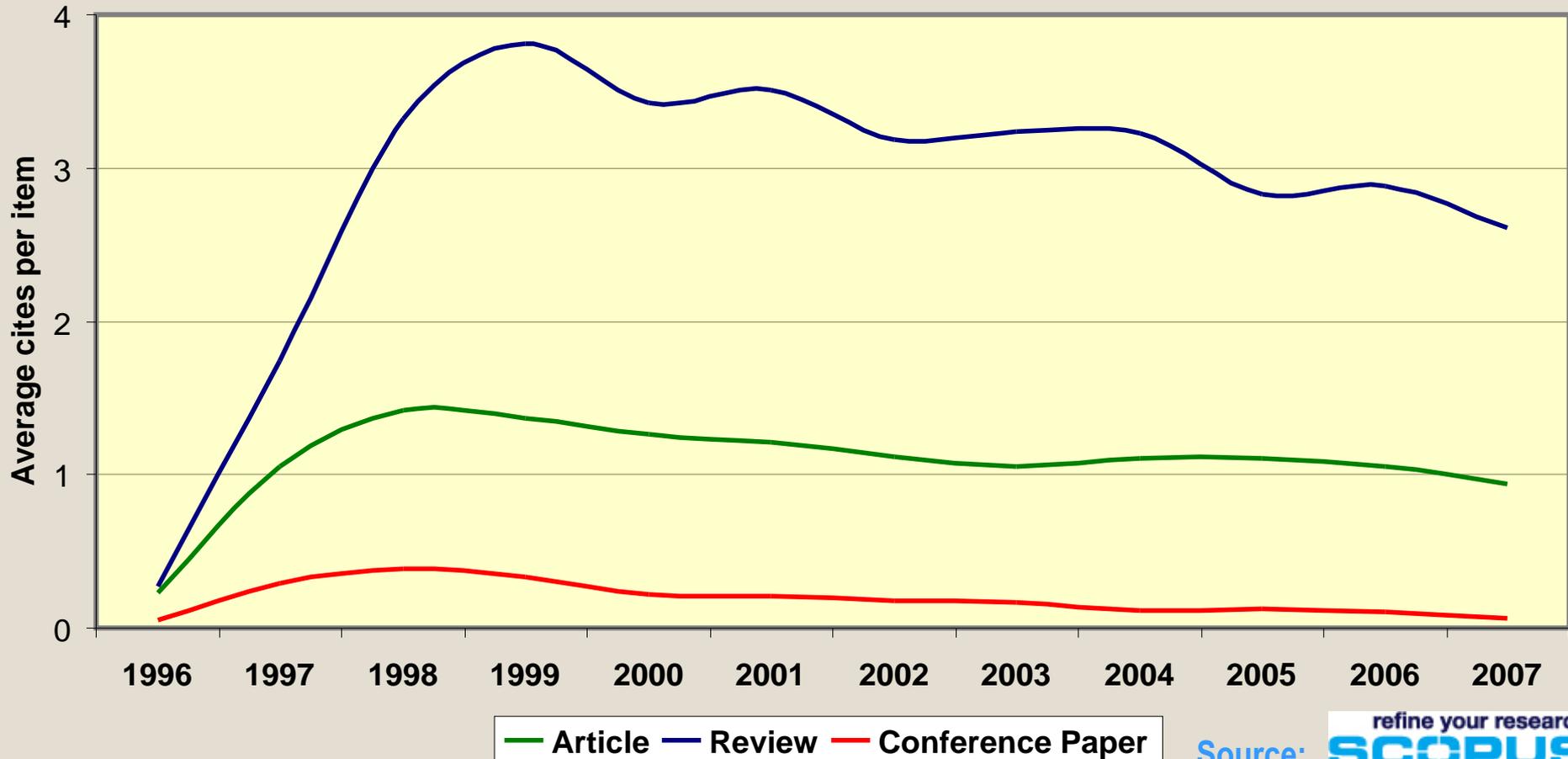
Review Paper

- **Critical synthesis of a specific research topic**
- **Typically 10+ pages, 5+ figures, 80 references**
- **Typically solicited by journal editors**
- **Good way to consolidate a scientific research career**

Sample review paper titles:

- “Advances in the allogeneic transplantation for thalassemia”
- “Stress and how bacteria cope with death and survival”
- “Quantifying the transmission potential of pandemic influenza”

Citation impact varies by publication type



Impact Factor (Eugene Garfield)

- **Impact Factor** (IF) of an academic journal is a measure reflecting the average number of citations to recent articles published in the journal (devised by Eugene Garfield)
- Journals with higher impact factors deemed to be more important than those with lower ones.
- Example: If a journal has an IF of 3 in 2008, then its papers published in 2006 and 2007 received 3 citations each on average in 2008.

h-index (Jorge E. Hirsch, UCSD)

- The ***h-index*** is an index that attempts to measure both the productivity and impact of the published work of a scientist or scholar
- A scholar with an index of *h* has published *h* papers each of which has been cited in other papers at least *h* times.
- The *h*-index serves as an alternative to more traditional journal IF metrics in the evaluation of the impact of the work of a particular researcher.
- The *h*-index grows as citations accumulate and thus it depends on the 'academic age' of a researcher.

i10-index (Google)

- The **i10-index** indicates the number of academic publications an author has written that have at least ten citations from others. It was introduced in July 2011 by Google as part of their work on Google Scholar, a search engine dedicated to academic and related papers.

Choose the target journal

- Choose one journal
- Your references can provide candidate journals
- Read recent publications in your field
- Find out specific journal details

Beware of Phishing: Publishers and editors rarely solicit papers from authors, and usually only as an invitation for review articles.

If you come across the spam emails 'Call for Papers' or 'Manuscript submission' please do not respond to them. We kindly request that you forward the email to eesservices@elsevier.com. Thank you for your patience with this matter.

Use the journal's "Guide for Authors"

- "Guide for Authors" includes:
 - Types of papers accepted
 - Editorial team contact information
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The screenshot shows the Elsevier website for the journal "MECHANISM AND MACHINE THEORY". The page features the Elsevier logo and tagline "Building Insights. Breaking Boundaries." at the top. Below the logo, there are navigation links for Home, Site map, Elsevier websites, and Alerts. The main content area includes the journal title, affiliation with IFToMM, and contact information for the Editor-in-Chief, A. Kecskeméthy. A sidebar on the left provides a navigation menu with categories like Products, Journal information, and Support & contact. On the right, there are sections for "For Readers" and "For Authors" with links to various resources. A search bar is located at the top right, and a "Search" button is at the bottom right.

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MECHANISM AND MACHINE THEORY
Affiliated as an Official IFToMM research journal - the International Federation for the Promotion of Mechanism and Machine Science

Editor-in-Chief:
A. Kecskeméthy
See [editorial board](#) for all editors information

Engineering news now available as RSS feed

Description
This international journal provides a medium of communication between engineers and scientists engaged in research and development within the fields of knowledge embraced by IFToMM, the International Federation for the Promotion of Mechanism and Machine Science.

The main topics are: •Design Theory and Methodology; •Haptics and Human-Machine-Interfaces; •Robotics, Mechatronics and Micro-Machines; •Mechanisms, Mechanical Transmissions and Machines; •Kinematics, Dynamics, and Control of Mechanical Systems;•Applications to Bioengineering and Molecular Chemistry.

Methodologically, this includes theoretical, experimental, and/or historical approaches, along with their practical application, including education. Substantially, the journal aims at covering all subjects related to mechanisms and machines in general, such as: design theory and methodology, kinematics of mechanisms, rotor dynamics, computational kinematics, multibody dynamics, dynamics of machinery, nonlinear vibrations, linkages and mechanisms, bearing and transmissions, transportation machinery, control and

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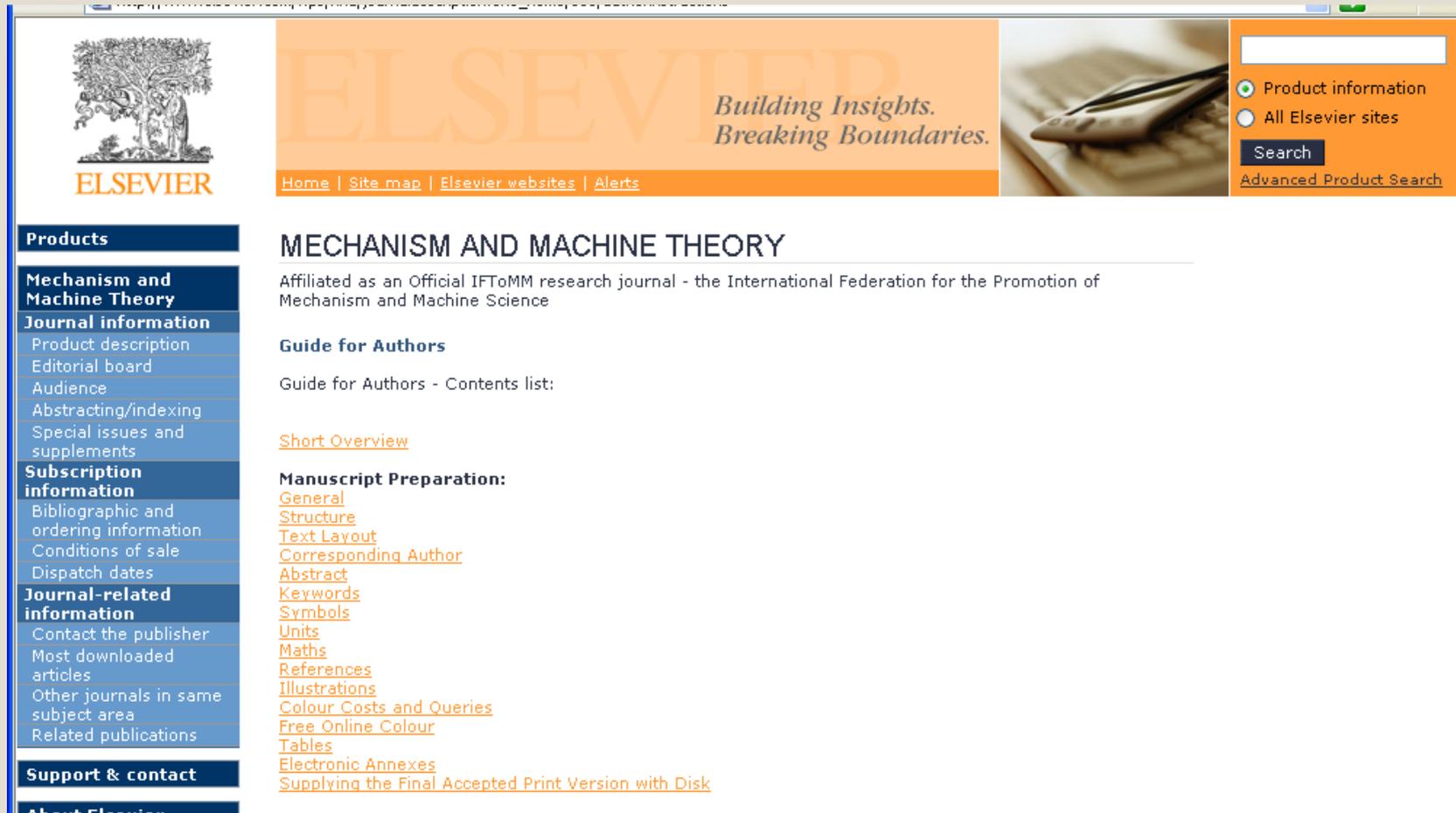
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Guide for Authors

Guide for Authors - Contents list:

[Short Overview](#)

Manuscript Preparation:

- [General](#)
- [Structure](#)
- [Text Layout](#)
- [Corresponding Author](#)
- [Abstract](#)
- [Keywords](#)
- [Symbols](#)
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Summary – What steps do I need to take before I write my paper?

- Determine if you are ready to publish
- Decide on the type of manuscript
- Choose the target journal
- Check the Guide for Authors

Objectives

- What steps do I need to take before I write my paper?
- How can I ensure I am using proper scientific language?
- How do I build up my article properly?
- How to make a good presentation?

Why Is Language Important?

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

Complaint from an editor:

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

Do Publishers Correct Language?

- Yes...
 - Publishers often provide resources for authors who are less familiar with the conventions of international journals
 - Some publishers may perform technical screening prior to peer review
- But...
 - It is the author's responsibility to use proper language prior to submission
 - Full copyediting is only done after an article is accepted

Scientific Language- Overview

Write with clarity, objectivity, accuracy, and brevity.

- Key to successful scientific writing is to be alert to common errors:
 - Sentence construction
 - Incorrect tenses
 - Inaccurate grammar
 - Mixing languages

Check the Guide for Authors of the target journal for any language specifications

Scientific Language – Sentences

- Write direct and short sentences
- One idea or piece of information per sentence is sufficient
- Avoid multiple statements in one sentence

An example of what NOT to do:

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

A possible modification:

“It was expected that the intravenous administration via emulsion would have a higher retention concentration. However, the experimental results suggest otherwise. The SLN entered the tumor blood vessel more easily than the emulsion. This may be due to the smaller aperture of the SLN (46 nm) compared with the aperture of the emulsion (65 nm).”

Scientific Language - Tenses

- Present tense for known facts and hypotheses:
“The average life of a honey bee is 6 weeks”
- Past tense for experiments you have conducted:
“All the honey bees were maintained in an environment with a consistent temperature of 23 degrees centigrade...”
- Past tense when you describe the results of an experiment:
“The average life span of bees in our contained environment was 8 weeks...”

Scientific Language - Grammar

- Use active voice to shorten sentences
 - Passive voice: "It has been found that there had been..."
 - Active voice: "We found that..."
 - Passive voice: "carbon dioxide was consumed by the plant..."
 - Active voice: "...the plant consumed carbon dioxide.."
- Avoid abbreviations: "it's", "weren't", "hasn't"
 - Never use them in scientific writing
 - Only use abbreviations for units of measure or established scientific abbreviations, e.g. DNA

Scientific Language - Grammar

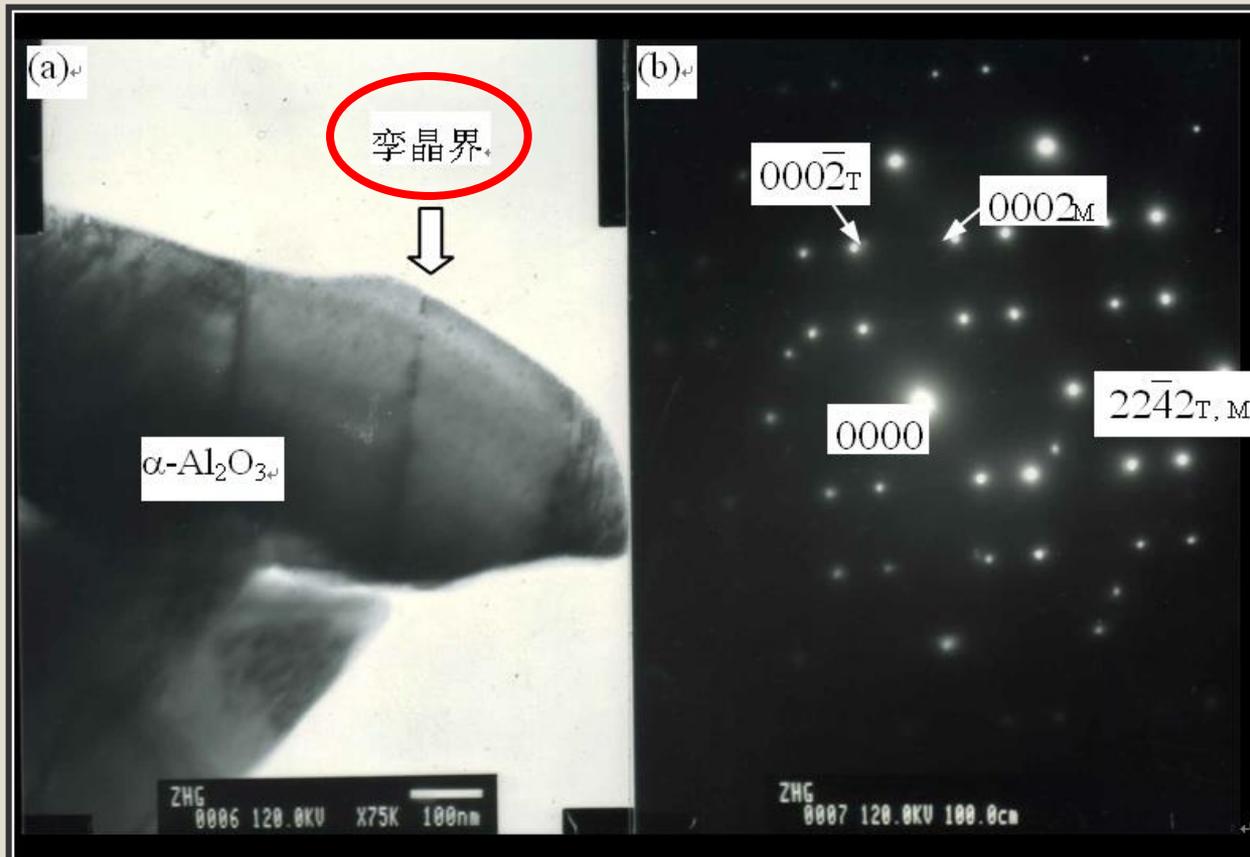
- Minimize use of adverbs: “However”, “In addition”, “Moreover”
- Eliminate redundant phrases
- Double-check unfamiliar words or phrases

“Never say ‘and references therein’ - as in [1] and [25]. Any intelligent reader knows to look at the references in a paper in order to get even more information.” - *Editor*

“Delete ‘In present report’. It is impossible for it to be in a different report! You start the conclusions “In this report, we have prepared.....” This is nonsense. The samples were prepared in the laboratory!” -*Editor*

Language

Finally, you should use English throughout the manuscript, including figures



Objectives

- What steps do I need to take before I write my paper?
- How can I ensure I am using proper scientific language?
- How do I build up my article properly?
- How to make a good presentation?

General Structure of a Full Article

Each section of a paper has a definite purpose

- Title
- Abstract
- Keywords

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

- Main text (IMRAD)
 - Introduction
 - Methods
 - Results
 - And
 - Discussions

Journal space is precious. Make your article as brief as possible.

- Conclusion
- Acknowledgement
- References
- Supporting Materials

The progression of the thematic scope of a paper:

general → particular → general

However, we often write in the following order:

- Figures and tables
- Methods, Results and Discussion
- Conclusions and Introduction
- Abstract and title

Title: Examples

Original Title	Revised	Remarks
Preliminary observations on the effect of Zn element on anticorrosion of zinc plating layer	Effect of Zn on anticorrosion of zinc plating layer	<u>Long title</u> distracts readers. Remove all <u>redundancies</u> such as “observations on”, “the nature of”, etc.
Action of antibiotics on bacteria	Inhibition of growth of mycobacterium tuberculosis by streptomycin	Titles should be <u>specific</u> . Think to yourself: “How will I search for this piece of information?” when you design the title.
Fabrication of carbon/CdS coaxial nanofibers displaying optical and electrical properties via electrospinning carbon	Electrospinning of carbon/CdS coaxial nanofibers with optical and electrical properties	“English needs help. The title is nonsense. All materials have properties of all varieties. You could examine my hair for its electrical and optical properties! You MUST be specific. I haven’t read the paper but I suspect there is something special about these properties, otherwise why would you be reporting them?” – <i>the Editor-in-chief</i>

Title

Tell readers what your paper is all about

- Attract the reader's attention
- Be specific
- Keep it informative and concise
- Avoid jargon and abbreviations

Abstract

Tell readers what you did and the important findings

- One paragraph (between 50-300 words)
- Advertisement for your article
- A clear abstract will strongly influence if your work is considered further

1. state the problem
2. say why it is interesting
3. say what your solution achieves
4. say what follows from your solution.

4-Sentence Recipe (Robotics 2: How to Write a Paper by Giorgio Grisetti, Cyrill Stachniss,, Kai Arras, Maren Bennewitz, Wolfram Burgard, *Uni. Freiburg*)

Keywords

Used by indexing and abstracting services

- They are the labels of your manuscript.
- Use only established abbreviations (e.g. DNA)
- Check the “Guide for Authors”

Article Title

“Silo music and silo quake: granular flow-induced vibration”

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

Keywords

Silo music, Silo quake, stick-slip flow, resonance, creep, granular discharge

Solar collector; Supercritical CO₂; Solar energy; Solar thermal utilization

Introduction

Provide context to convince readers that you clearly know why your work is useful

- Be brief
- Clearly address the following:
 - What is the problem?
 - Are there any existing solutions?
 - Which solution is the best?
 - What is its main limitation?
 - What do you hope to achieve?
- Try to be consistent with the nature of the journal

Introduction

Provide context to convince readers that you clearly know why your work is useful

Sample 1st paragraph of an Introduction

1. Introduction

The environmental pollution and the energy crisis have brought serious problems to the world environment and sustainable development. The applications of solar energy to electricity generation and heat collection/refrigeration become important, and have received considerable attention [1], [2], [3], [4], [5], [6], [7] and [8]. The solar collector is the heart of these solar energy utilization systems. During the last two decades a number of researchers have worked on developing new and more efficient solar collector or improving existing ones [9], [10] and [11]. For example, the performance of a water-in-glass evacuated tube solar heater is investigated and factors influencing the operation of water-in-glass collector tubes are discussed. The results show the existence of inactive region near the sealed end of the tube which might influence the performance of the collector [12].

Zhang, XR; Yamaguchi, H. "An experimental study on evacuated tube solar collector using supercritical CO₂" *Applied Thermal Engineering*. © Elsevier

Methods

Describe how the problem was studied

- Include detailed information
- Do not describe previously published procedures
- Identify the equipment and describe materials used

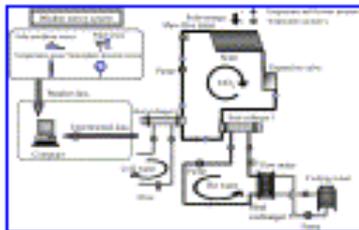
Methods

Describe how the problem was studied

Sample 1st paragraph of an Experimental Set-Up section

2. Experimental set-up

In order to study the CO₂-based collector characteristics well, a closed CO₂ loop including the collector is necessary. The CO₂ loop is designed and it consists of a solar collector array, flow regulating valve (throttling valve), heat exchanging system, and feed pump. The details of the experimental set-up are shown in Fig. 1. The solar collector is used to heat CO₂ fluid contained in heating channels and increase CO₂ temperature. The supercritical CO₂ flows through the valve, which can be used to adjust the CO₂ flow rate for the present study. The CO₂ flowing out of the valve is cooled in the heat exchanging system. After that, it is pumped by the feed pump, back into the higher pressure condition in the solar collector. As shown in Fig. 1 the experimental set-up is a closed cycle of CO₂ fluid, which is mainly comprised of evacuated solar collector arrays, a throttling valve, heat exchangers 1 and 2 (CO₂/water heat exchanger), liquid CO₂ feed pump, and measurement and data acquisition system.



Zhang, XR; Yamaguchi, H. "An experimental study on evacuated tube solar collector using supercritical CO₂" *Applied Thermal Engineering* © Elsevier

[Display Full Size version of this image \(39K\)](#)

Results

What have you found?

- Present essential/primary results
- Use sub-headings
- Use figures/illustrations
 - Graphs
 - Tables
 - Photos

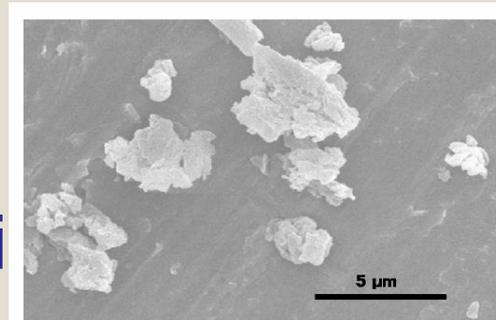


Fig. 1. A photograph of SEM of PTFE polymerized in solid state at 77K with a dose of 700 kGy.

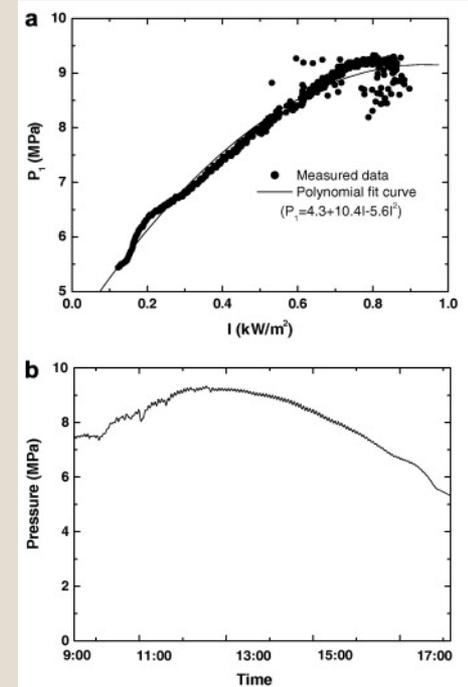


Fig. 5. Variations in the CO_2 pressure measured with the solar collector over the time (b).

Type of attack	Classical (%)	Pop (%)	Jazz (%)
Echo addition	0	0.10	0.27
Noise addition	1.20	1.42	1.60
Band equalization	2.31	2.50	2.73

Discussion

What the results mean

- Most important section
- Make the Discussion correspond to the Results
- You need to compare the published results with yours

Discussion

Sample 1st paragraph of an Discussion section

5. Discussion

In this section, a mechanism for the production of pulsations is suggested. The results are then compared with those obtained in previous work on pulsating granular materials, and some suggestions for further work are made.

5.1. A mechanism for producing silo quake

Using the background on stick–slip friction in granular materials discussed earlier, one can compare the experimental observations in this study with those in previous studies to qualitatively explain the physical mechanism for stick–slip motion. The dynamic arch which forms in such flows is part of a force chain—that is, a particle contact network through which stresses are transmitted [28]. The arch is fragile, and consequently when the material below it has discharged enough so that the arch is unsupported from below, a slow creep typically observed in adhesive stick–slip flow begins. During this creep, the adhesive friction forces become progressively weaker and weaker, and eventually the arch will break. Once the arch collapses, complete slip occurs, a quake is observed, and a new arch is created. This quake can set up structural vibrations of decaying amplitude that then collapse the newly formed arch; in this manner, a series of self-sustained pulsations results. This is the pulsation process observed in this study, where the discharge rate is *fast* enough (between 1 and 8 cm/s) that it does not affect the f_p unlike in Wensrich's study [8] and [9].

Conclusion

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

- Should be clear
- Justify your work in the scientific field
- Suggest future experiments

Conclusion

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

Sample Conclusion

6. Conclusion

This study has shown that stick–slip motion generates silo music and silo quake. Silo music is driven by the stick–slip pulsating motion of the granular material during discharge and is associated with a resonance in the air column above the bed. When the pulsating motion disappears, so does the silo music. Over the range of discharge rates studied here (equivalent to average velocities of descent through the tube of 1–8 cm/s), the pulsation frequency was independent of discharge velocity. Both silo music and flow pulsations stopped abruptly when the bed height fell below a critical value. The critical height could be changed by placing an overload in the case of crushed glass, but not in the case of the smooth glass beads. This may be rationalized, although only speculatively at this point, by differences in stress chain behavior.

Muite, B.K., Quinn, S.F., Sundaresan, S., Rao, K.K.. “Silo music and silo quake: granular flow-induced vibration” *Powder Technology*. © Elsevier

Acknowledgments

Ensures those who helped in the research are recognised

Include individuals who have assisted with your study, including:

- Advisors
- Financial supporters
- Proofreaders
- Typists
- Suppliers who may have given materials

References

Cite the main scientific publications on which your work is based

- Do not use too many references
- Avoid excessive self-citations
- Avoid excessive citations of publications from the same region
- Conform strictly to the style given in the Guide for Authors

References

Cite the main scientific publications on which your work is based

References

- [1] B. Hardow, D. Schulze, J. Schwedes, An experimental analysis of the 'silo quaking' phenomenon, Proc. Of the 3rd World Congress on Particle Technology, Brighton, England, 1998.
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- [9] C.M. Wensrich, Analytical and Numerical Modeling of Quaking in Tall Silos, PhD thesis, University of Newcastle, Australia (2002).

Cover Letter

Your chance to speak to the editor directly

- Submitted along with your manuscript
- Mention what would make your manuscript special to the journal
- Note special requirements (reviewers, conflicts of interest)

Cover Letter

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

January 1, 2008

Dear Professor Schmidt,

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

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

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

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

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

Sincerely yours,

A. Professor

Final approval from all authors

Explanation of importance of research

Suggested reviewers

Revision

Revise before submission

- Vet the manuscript as thoroughly as possible before submission
- Ask colleagues and supervisors to review your manuscript
- Read the paper at least 2-3 times
- Follow copyediting

Finally, **SUBMIT** your manuscript with a cover letter and await a response...

After Submission

- Refereeing speed varies tremendously between journals
- The Editor will decide to “Accept”, “Accept with Revision (Minor or Major)”, or “Reject” the manuscript

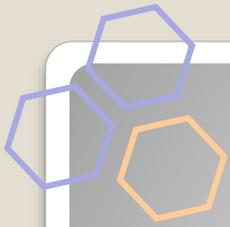
Be Aware of Plagiarism

- An act or instance of using or closely imitating the language and thoughts of another author without authorization and the representation of that author's work as one's own, as by not crediting the original author
- *Software available to check for it: Be careful!*



Objectives

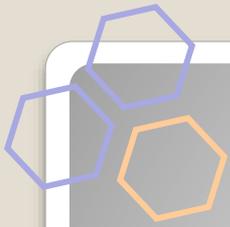
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- How do I build up my article properly?
- How to make good presentation?



Ten Tips of Presentations

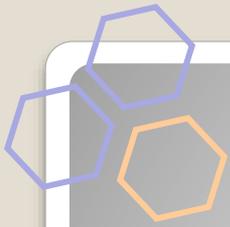
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<https://www.skillsyouneed.com/present/presentation-tips.html>



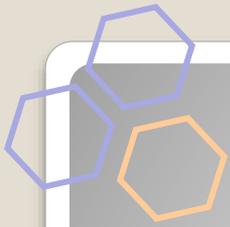
1. Show your Passion and Connect with your Audience

- Be honest with the audience about what is important to you and why it matters.
- If you are enthusiastic and honest, the audience will respond.



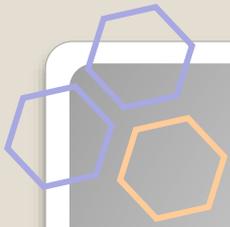
2. Focus on your Audience's Needs

- Think about what the audience needs, and wants to know, not what you can tell them.
- Make it easy for your audience to understand and respond.



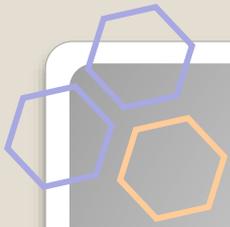
3. Keep it Simple: Concentrate on your Core Message

- What is the key message (or three key points) for my audience to take away?
- If what you are planning to say doesn't contribute to that core message, don't say.



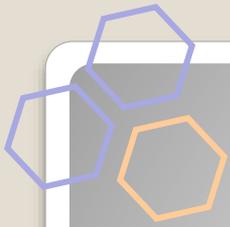
4. Smile and Make Eye Contact with your Audience

- If you smile and make eye contact, you are building rapport.
- It helps the audience to connect with you and your subject.
- It also helps you to feel less nervous
- Don't turn down all lights. Your audience needs to see you as well as your slides.



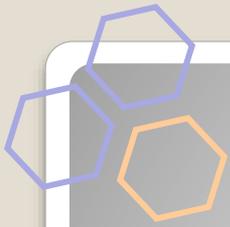
5. Start Strongly

- Start of presentation is crucial.
- Need to grab audience's attention and hold it.
- Try a story, or an attention-grabbing (but useful) image on a slide.



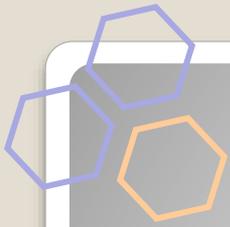
6. May Try 10-20-30 Rule

- Contain no more than 10 slides (not always practical though!).
- Last no more than 20 minutes.
- Use a 30 point font.
- Restricts to not too much texts.



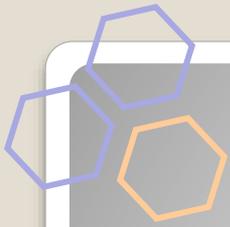
7. Tell Stories

- Human beings are programmed to respond to stories.
- Stories help us to pay attention, and also to remember things.



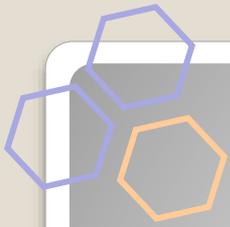
8. Use your Voice Effectively

- Varying pitch, tone, etc. make the presentation more interesting.
- Hold audience's attention.



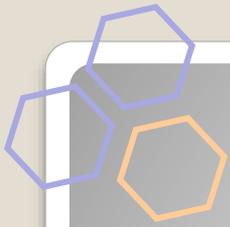
9. Use your Body Too

- It has been estimated that more than three quarters of communication is non-verbal.
- Avoid crossed arms, hands held behind your back or in your pockets, and pacing the stage.



10. Relax, Breathe and Enjoy

- If you relax, you will present better.
- If you enjoy yourself, your audience will respond, and engage better.



Personal Advices

- Use keywords, not full sentence.
- MUST practice yourself or in front of friends/mirror/webcam
- Skip slides, if necessary
- Make audience laugh (at least once)
- Should you waste {No. of audiences x mins.}/60 hours?

Conclusions

- Where to publish a paper?
- How to choose a type of paper?
- What to write?
- Ten tips for good presentation

THANK YOU FOR ?ATTENTION?

धन्यवाद

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