SIC Journal Club (6th)

VIRTUAL VISITING PROFESSOR PROJECT

Topic: High Quality Scientific Manuscript Writing and Publication Workshop

FREE

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Delhi Technological University (DTU), India

*** Limited only for 30 participants*

2ND DECEMBER 2021

10.00 AM - 3.00 PM

zoom

APPLY HERE....

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The questions to ask yourself first…

Is the paper worth writing?

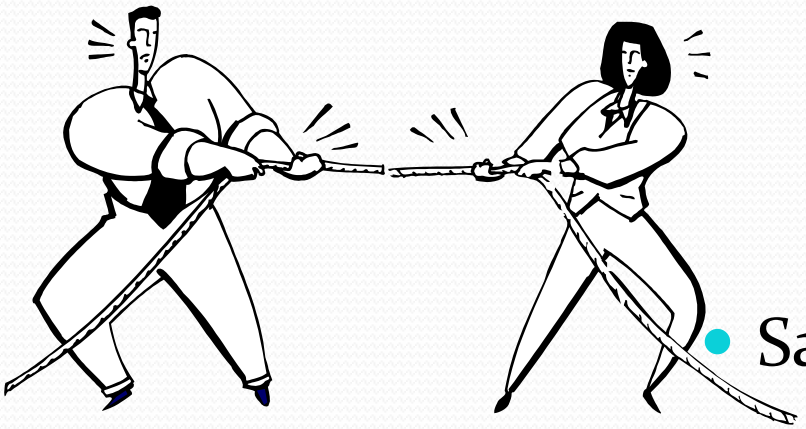
- What's in the literature?
- "So What?"
- It's a lot of work (average 20-30 drafts). Don't do it unless its worth it.

What do I have to say?

- A single question clearly stated with adequate evidence for the answer.
- Try stating the question and its answer in one simple sentence.

Is it one or more papers?

- Putting too much in one paper makes it diffuse and less compelling than if its focused



- Salami Science?

OK, So you want to/need to write a paper --> next questions

a. What is the right format for the message (original article/review?)

b. What is the right audience—who cares?

c. What journal should I choose?

Which journal?

- i. Is topic of my paper within its scope and format?
- ii. Would it match my audience?
- iii. Ask mentor or other senior researchers: appropriateness
- iv. Impact Factor
- v. Consequences of wrong decision: time lost; failure to publish

Calculation for journal impact factor*

A= total cites in 2015

B= 2015 cites to articles published in 2013-14 (this is a subset of A)

C= number of articles published in 2013-14

D= B/C = 2015 impact factor

**Weights review articles heavily and is higher in scientifically better populated fields*

To find out a journal's impact factor

Search on Impact Factor (current year - 2 years)

(e.g. for now, search: impact factor 2015

First to Write a Scientific Manuscript

Common Errors

- 1. **Abstract** :
- a) Not representing all Information.

- **2. Introduction** :
- a) No general intro for new researcher.
- b) Not enough LRs (to hide something).
- c) LR not related to topic.
- d) Problem statement is not clear.
- e) No objective.

Continued….

3. Experimental:

a) Need to helps readers to understand what experiment you had done.

4. Results & Discussion:

a) Only analysis, no discussion or comparison or summary.

5. Conclusion:

a) The findings.

6. References:

a) Consistency

Introduction

- **Here is the process which I used: Dr. Angel Borja , Elsevier**
- Think about the topic you want to present, for some days or weeks.
- Make figures and tables.
- Then write as quickly as possible, as if thinking out loud. Get every thing down, ignoring spelling, grammar, style and troublesome words.
- Correct and rewrite only when the whole text is on paper.

Real Life!

What My Reader Thinks I'm Doing

Paper Format:

- Title
- Abstract
- Introduction
- Experimental
- Results and discussion
- Conclusion
- References

Thesis Format:

- Title
- Abstract
- Introduction
- Literature Review
- Experimental
- Results and discussion
- Conclusion
- References

What Really I'm Doing

In reverse Order:

- Results and discussion
- Conclusion
- Experimental
- Introduction
- Abstract
- Title
- References (every time)

Should be Clear….

- Type of paper – Review, Extended Abstract, Article and etc.
- Journal Selection.
- Manuscript Format.
- Please Taking Care of The KEYWORDS.
- Teamwork (Multidisciplinary).
- Quality vs. Quantity
- Strategy
- Recognition

Structure of Research Paper Format

Structure of research paper “IMRaD” format.

I = Introduction,

what question (problem) was studied, what others and you did? Short survey on study area of interest

M = Method,

show was the problem studied.

R = Results,

what are the findings

a = and,

D = Discussion,

what do these findings mean

Definition of Scientific paper (Introduction)

An accepted original scientific publication containing scientific information to enable peers:

1. to assess observations.
2. to repeat experiments.
3. to evaluate intellectual processes.
4. must have an impact.
5. available to scientific community without restriction.
6. available for regular screening by one or more of the major recognized secondary services (on-line bases; Pub Med, Scopus, etc…)

Be aware of key elements of publishing

Steps in writing, Before you start.

1. Ethical Issues.
2. Style and language.
3. Structure of paper.
4. Components of paper.
5. Article submission process/journal selection.
6. Publisher’s process/peer review

Steps in writing, Ethical issues

- Disclosure of Conflict of Interest.
- Acknowledgment of funding sources.
- Image manipulation guidelines.
- Online submission - supplemental information (datasets, videos)

Steps in writing : Style and language

1. Refer to the journal's author guide for notes on style.

- Some authors write their paper with a specific journal in mind.
- Others write the paper and then adapt it to fit the style of a journal they subsequently choose.

2. Objective is to report your findings and conclusions clearly and concisely as possible.

3. If English is not your first language, find a native English speaker (if possible) to review the content and language of the paper before submitting it.

4. Regardless of primary language, find a colleague/editor to review the content and language of the paper

Be aware of essential parts of a scientific paper

- Title: Describe concisely the core contents of the paper.
- Abstract: Summarize the major elements of the paper.
- Introduction: provide context and rationale for the study.
- Materials: Describe the experimental design so it is reproducible.
- Methods: Describe the experimental procedures.
- Results: Summarize the findings without interpretation.
- Discussion: Interpret the findings of the study.
- Conclusions/Summary: Summarize the findings.
- Acknowledgement: Give credit to those who helped/funded you.
- References: List all scientific papers, books and websites that you cited

Steps in writing Before you start: for quality results!!

1. Make tables.
2. Draw graphs.
3. Summarize each table/figure in a single sentence.
4. Share your tables/figures and single-sentence summaries to coauthors.
5. Make additional notes; record summaries of results and any observation although seems insignificant.
6. Date the files – important to avoid confusing with the versions.
7. Revise your readings – maybe there is a need to repeat some experiment.
8. Write any ideas (related to the conducted research) when ever they come to you – 24h thinking!!

Continued..

9. Make a literature survey on the filed of interest, review your results and notes again.
10. Choose a journal – on the basis of conducted survey and your results.

- **Strategies to choose the journal:**

- Where many of the papers cited were published?
- Where do cited scientists publish their work?
- Read the advertising statements of journals.
- Read the “scope” paragraph.
- Read the table of contents of potential journals.
- Examine several articles in potential journals.

Author Publishing Priorities

1. Quality and speed.

- Top items:

• refereeing speed.
• refereeing standard
• journal reputation.

- editor/board, physical quality and publication services.

• **Where to submit the manuscript**

•The prestige factor.
•The circulation factor.
•The frequency factor.
•The audience factor

Who can publish your paper?

Professional societies:

ACS

RSC

IWA

ASCE...

Professional publishers:

Elsevier, Springer Verlag, Wiley & Sons, Kluwer Academic Publishing, Blackwell, Taylor & Francis, Hindawi, Academic Press

Steps in writing :Title

- A good title is defined as the fewest possible words that adequately describe the contents of the paper.
- The title is extremely important and must be chosen with great care as it will be read by thousands, whereas few will read the entire paper.
- Indexing and abstracting of the paper depends on the accuracy of the title.
- An improperly titled paper will get lost and will never be read.

Steps in writing: Title (continued)

1. Titles should neither be too short nor too long as to be meaningless.
2. Waste words (studies on, investigations on, a, an, the etc) should not be used.
3. syntax (word order) must be very carefully considered.
4. It should contain the keywords that reflect the contents of the paper.
5. It should be meaningful and not general.
6. It should be concise, specific and informative.
7.It should capture the fundamental nature of the and experiments findings

Steps in writing : Title (continued)

- **How to Prepare the Title:**

- Make a list of the most important keywords.
- Think of a title that contains these words.
- The title could state the conclusion of the paper.
- The title NEVER contains abbreviations, chemical formulas, proprietary names or jargon.
- Think, rethink of the title before submitting the paper.
- Be very careful of the grammatical errors due to faulty word order

Commons Errors

Abstract

(Suggestion: 4 Parts)

Purpose/Intro

Method/ Approach

Finding/ Result

Originality/ Novelty

Abstract |
The Language Of Abstracts - Guidelines

- Use the past tense to refer to what was done and what was found at each stage of the research.
- Use the present tense to comment on the significance of your research/ findings.
- Use active verbs whenever possible, e.g. ‘the study tested’ instead of ‘it was tested by the study’.
- Use non-evaluative language - report not comment on what you have done.

Steps in writing : Abstract

1. An abstract can be defined as a summary of the information in a document.
2. It is of fundamental importance that the abstract be written clearly and simply, as it is the first and sometimes the only part of the manuscript read.
3. It should provide a brief summary of each of the main sections (IMRaD) of the paper:
   - State the principal objective and scope of the investigation
   - Describe the methods used.
   - Summarize the results, and
   - State the principal conclusions
4. It is easier to write the abstract after completion of the paper

Steps in writing Abstract: (continued)

- **Criteria of the Abstract:**

- Usually, it should not exceed 250 words (depending on journal publisher rules).
- It should be written in one paragraph.
- It should be written in the past tense as it refers to work done.
- Long words should be followed by its abbreviation which would be used through out the abstract (and paper).
- It should not cite any references (except in rare cases).
- It should never give any information or conclusion that is not stated in the paper.
- Must be accurate with respect to figures quoted in the main text.

Commons Errors

Introduction

(Suggestion: 3 Paragraphs)

P1
General Intro

P2
LR + PS

P3
Objective +
Approach

Common Problems:

1.What is this? (what field?)
2. No latest Not a latest literature.
3. Unclear problem statement.
4. No objective

Solution?

Separate them!

Steps in writing : Introduction

The introduction should answer the following questions:

1. What was I studying?
2. Why was this an important question?
3. What did I know about this topic before I did this study?
4. What model was I testing? And
5. What approach did I take in this study

Introduction: (Continued)

Suggested rules for a good introduction:

1. It should present the nature and scope of the problem investigated.
2. Provide background and present the review the pertinent literature.
3. List the structure of your research project and what you plan to present in your paper.

1. State the method of investigation.
2. State the principal results of the investigation.
3. State the principal conclusion(s) suggested by the results.

Introduction: (Continued)

- **General rules:**
- Use the present tense when referring to work that has already been published, but past tense when referring to your own study.
- Use the active voice as much as possible.
- Avoid lengthy or unfocused reviews of previous research.
- Cite peer-reviewed scientific literature, avoid general reference works such as textbooks, but might be used with specified pages reflecting stated.
- Define any specialized terms or abbreviations

Introduction: (Continued)

- **Tips:**
- 2-3 paragraphs, <450 words
- **First paragraph:**

  Introduce broad area
- **Second paragraph**

  Explicit rationale
- **Last paragraph**

  Hypothesis

Commons Errors

Experimental/ Methods

- Text
- Flowchart
- Table
- Drawing & Photo

Commons Errors

1. Short as possible.
2. All machine/equipment/software names here.
3. Picture
4. Drawing

Experimental | Avoid Citations in Experimental

Literature: Should be in Introduction (paper) or Literature Review (thesis).
References: It looks like no novelty (similar to your cited refs)Expose your weakness in novelty

Steps in writing: Materials and Methods

- Complete information of materials and methods used, conditions present, actions, experimental design, etc.
- This section usually has subheadings; when possible match those to be used in Results.
- Enough information must be given so that the models/experiments can be reproduced.
- Ask a colleague if he/she can follow the methodology.

Materials and Methods (Continued)

Tips

1. Provide full details so that the experiments are reproducible.

- If the peer reviewer has doubts that the experiments could be repeated, the manuscript will be rejected.

2. Organize the methods under subheadings, with related methods described together (e.g. Materials, Experimental procedure, Analysis, Calculations, Computational procedure…)

- Describe the experimental procedure/design in detail.
- Do not mix some of the Results in this section.
- Write in the past tense

Materials and Methods (Continued)

- Must identify accurately experimental chemicals, materials, animals, plants, microorganisms… (technical and natural sciences, medical papers).
- The source of subjects studied, number of individuals in each group used, their sex, age, and weight must be clearly stated (social and human science, medical papers).
- For chemicals used, include exact technical specifications (purity, producer/supplier name & country) and source or method of preparation.
- Avoid the use of trade names of chemicals; generic or chemical names are preferred.

Materials and Methods (Continued)

- This part of the manuscript must be clear, precise and concise so that it can be reproducible.

1. If the method is new, all details must be provided.
2. If the method has been previously published in a scientific journal, only the reference should be given with some short identification.

- Questions such as “how” or “how much” must be answered and not left to be puzzled over.
- Methods used for statistical analyses must be mentioned; ordinary ones without comments, but advanced or unusual ones require literature citation.

Commons Errors

Results & Discussion

(Formula: 1 Figure + 2 Paragraphs)

Results

Fig, graph, picture, scheme [topic]

P1. Analysis

[how?] data, numbers, behavior, pattern

P2. Discussion

[why?] your result

Compare [refs. + but not necessary]

Summary [your finding]

Common problems:

- Don't know which one is analysis and discussion (mixed).
- Difficult to differentiate the results or refs.
- Many statements, assumptions, speculations (unsupported).

- **Solution?**
- Separate them!

Commons Errors

Figure

Result

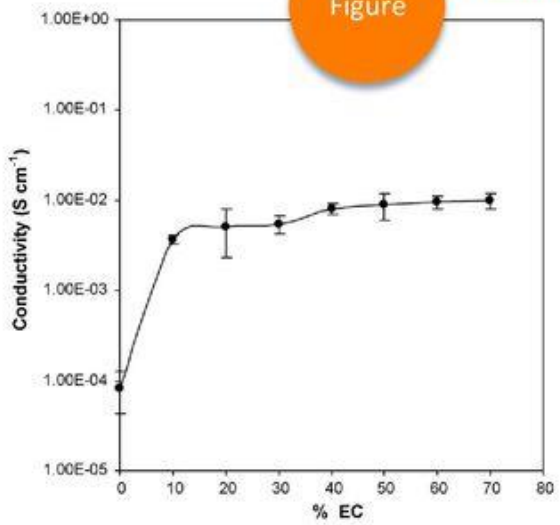


Fig. 2. Electrical conductivity vs. EC concentrations in CA-40 wt.% NH_4NO_3 at room temperature.

3.2. Solid polymer electrolytes characterization: CA-NH_4NO_3-EC system

Fig. 2 shows the variation of conductivity as a function of plasticizer content in a CA-40 wt.% NH_4NO_3 system at room temperature. It can be observed that the highest conductiv- ity at room temperature was $9.93 \pm 1.90 \times 10^{-3}$ S cm^{-1}, and achieved for the film with 70 wt.% EC (18 wt.% CA-12 wt.% NH_4NO_3-70 wt.% EC). The value of R_b decreases at about

54.5 Ω and the surface resistance was at 19.7 Ω when compared to the highest unplasticized film. An addition of concentration of EC beyond 70 wt.% causes the poor mechanical strength. There- fore, the amount of EC was maintained below 70 wt.% to ensure the acceptable mechanical properties.

On addition of salt, the conductivity continued to increase by increasing the ion content up to a certain amount. It can be inferred that the salt was responsible for the conductance of the chitosan-based films. However the EC did not increase the ion numbers, but the role of the EC was to dissociate the salt thereby increasing the numbers of mobile ions, which lead to conductivity enhancement [10,11].

1

Analysis
(how?) + data

2

Discussion
(why?) + comparison (refs)

General Discussion

- They tell a story.
- This will tell that you are the knowledgeable, expert, scholar.
- Put your most important figures firstDon’t speculate too much (and don’t combine with Results section).
- Good finding, original work, high novelty – no need many results.
- Continuous work – needs many results, systematic work.
- Complete set of results will be an advantage.

Discussion + Reference: Avoid:

- Don’t heavily cited other papers.
- It’s look like you don’t have your idea (no brain?)
- It’s look like you copy-paste

Steps in writing : Results

- Display of data with logical development showing how your findings satisfy your objectives.
- Where possible give illustrative examples and compare those with known results from literature.
- Use tables and figures.

Steps in writing : Results (Continued)

How to write the Results

- Section is written in the past tense.
- It is the core or heart of the paper.
- It needs to be clearly and simply stated since it constitutes the new knowledge contributed to the world.
- The purpose of this section is to summarize and illustrate the findings in an orderly and logical sequence, without interpretation.
- The text should guide the reader through the findings, stressing the major points.
- Do not describe methods that have already been described in the M&M section.

Steps in writing : Results (Continued)

- Methods of presenting the data:

1. Directly in the text.
2. In a table.
3. In a figure.

- All figures and tables must be accompanied by a textual presentation of the key findings.

❑ Never have a table or figure that is not mentioned in the text.

- Refer to data (Fig. X, Table Y)
- Don’t repeat numbers in Tables.
- Can state numbers from Figures if precision is required.
- A lot of numbers? make Table

Steps in writing : Results (Continued)

Tables and figures:

1. Tables are appropriate for large or complicated data sets that would be difficult to explain clearly in text.
2. Figures are appropriate for data sets that exhibit trends, patterns, or relationships that are best conveyed visually.
3. Any table or figure must be sufficiently described by its title and caption or legend, to be understandable without reading the main text of the results section.
4. Do not include both a table and a figure showing the same information.

Steps in writing :Discussion

- It is the hardest section to write.
- often combined with the Results section into one section: R&D section – core of paper.
- Its primary purpose is to show the relationships among observed facts.
- It should end with a short summary or conclusion (depending on journal publisher rules) regarding the significance of the work.
- conclusions often extracted into separate section ending the paper; Conclusion

Discussion (continued)

- **Components of the discussion:**
- Try to present the principles, relationships, and generalizations shown by the Results.
- Point out any exceptions or any lack of correlation and define unsettled points.
- Show how your results and interpretations agree or contrast with previously published work.
- Discuss the theoretical implications of your work, and any possible practical applications.
- State your conclusions as clearly as possible.
- Summarize your evidence for each conclusion.

Discussion (continued)

- **Tips:**

1. First paragraph

- state major findings.
- paraphrase abstract.

2. Last paragraph

- “In summary…” (2-3 sentences)
- “In conclusion…” (biggest message, return to Intro, avoid speculation, avoid “need more work”)

3. Middle paragraphs

- base each on a major result.
- always focus on your results.
- never discuss prior work without reference to your work.
- refer to Tables and Figures

Commons Errors

Conclusion
(Findings)

Mapping [PS, Objectives]

Findings

Concept

The Conclusion section presents the outcome of the work by interpreting the findings at a higher level of abstraction than the Discussion and by relating these findings to the motivation stated in the Introduction – Nature.com

- Conclusion is not Abstract
- Main findings
- Mapping to your Problem Statement & Objective

Format Should contain the following elements:

- Restatement of the aims (research).
- Summarizations of the main findings.
- Significant of the findings.
- Limitation of the current study (if necessary)

Conclusions

- State your conclusion(s) as clearly as possible.
- Summarize evidence for each conclusion.
- End with a short statement regarding the significance of your work

Commons Errors

Figure + Table
(Results & discussion + Experimental)

Graph

Schematic

Picture

Continued..

- This is What I Do.
- On a 1000 mile journey, the hardest thing is the First step.
- Made the first step easy!
- The Figure is often easiest to write as is simply descriptive.
- Order this in the same way as you will present your results.
- One of the easiest ways to display your results and findings in an easy to understand format.

Graphics | Make Easy-to-understand Graphics

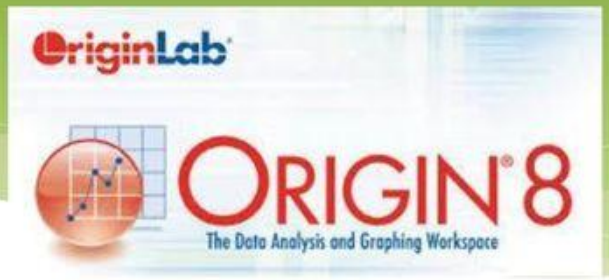
1. Arrangement
2. Flow
3. Ideas

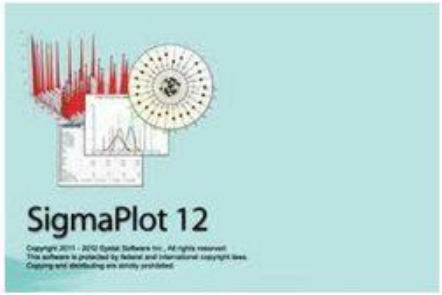
- Limit figures to ≤10.
- Font = Arial, 10.
- Thin line.
- No frame/box.
- Remove repeated legends.
- Good in words format.

This Is What I Do

Graphics | Make Easy-to-understand Graphics

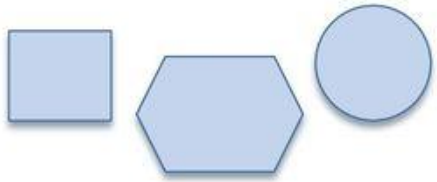
For Graph





For Mechanism

Block Drawing



Steps in writing : Figures

- Do before writing
- **Axes.**
  - Minimize tick marks.
  - Don’t number each tick**.**
- **Lettering**
  - Uniform, lower case
  - Minimize, avoid bold
- **Legend**
  - Gives message

Steps in writing: Tables

- Do before writing.
- Single unit, understood without text.
- Exceed 1 sheet: redraw.
- Avoid narrow/broadIf small: move data to text

Commons Errors

References

Up to Date

Related to Your Work

Refs | Why Do You Have To Reference?

- To avoid plagiarism.
- To enable a readers to trace your sources.
- To enable a reader to distinguish your ideas from someone else’s.
- To support your ideas and theories

References (Tips)

- Cite paper that related to current work.
- Don’t cite all of irrelevant paper here.
- Make sure that your reference section is up to date by including current literature (back to 10 yrs times).
- Avoid cite to many, it look like you can’t think, depending to others explanations.
- Please cite any paper from the book/Journal that you want to submit – to show them your works can be published here as well.
- Try to avoid conference papers, theses and web pages

Steps in writing : References

- **What is referencing?**
- referencing is a standardized way of acknowledging the sources of information and ideas that you have used in your document.
- list of ALL the references used in the text must be written.
- reference format varies widely:

- Harvard format (the name and year system) is the most widely used.
- Alphabet-Number system is a modification of name and year system.
- In Citation order system.
- **Reference list:**
- any papers not cited in the text should not be included.
- reference lists allow readers to investigate the subject in greater depth

Commons Errors

Acknowledgment

Missing Info

Repeating

Acknowledgments

You should acknowledge:

- any significant technical help that you have received from any individual in your lab or elsewhere.
- the source of special equipment, cultures, or any other material.
- any outside financial assistance, such as grants, contracts or fellowships.

show the proposed wording of the Acknowledgement to the person whose help you are acknowledging.

Proof read before Submitting

- ✓ Are terms used consistently throughout?
- ✓ Do numbers in abstract match numbers in text and tables?
- ✓ Do citations in text match references?
- ✓ Are Syntax and Grammar acceptable

Tips for writing and publishing

Win the editor's heart??

- **Cover letter**

  1. Explain why the journal is suitable for your article.
  2. Why you believe the article is within the scope?
  3. What is novel about your work?
  4. May cite other papers published in the journal as partial consideration of publication in the journal.

Language & Scope

Abstract

Review History

Authorship

Getting the Reviews of Your Paper

- “The reviewer is always right.” (whether they are or not!)

- Don’t respond quickly. Digest reviews.

.

If your paper was rejected…

- Was it sent out for review? If not, consider changing type of journal
- If reviews don't suggest changes, send it out quickly to another journal
- The 3 journal rule.

Thank You