

Check List for Writing Journal Paper and Submission

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Decision of writing a journal paper

- Ask yourself whether you have original results enough to claim meaningful contribution
- Check whether the computations are verified and validated
- Write down 2-3 original outcome items (or sentences) and prepare 3-5 figures to support them
- Write down why they are novel and important
- Write down how they improve the previous knowledge (**in comparison with previous mother papers**)
- Remember readers want to see original results with ‘*good story*’, which can be done by 1) presenting exciting new results (which themselves are good story); 2) showing important implications of the results; 3) describing your effort with a story (ex. telling which problems were particularly difficult during work and how you overcame/solved them, etc.)

Selection of target journal

- Check which journals normally publish similar works and choose 2-3 target journals
- Check IF (Impact Factor) and ES (Eigenfactor Score) values and order in the corresponding field (ex. mechanics) of target journals. Consider both IF & ES. Nonetheless, weigh more on ES, since the journals with high ES publish more papers **which are cited by other highly influential journals**.

<https://jcr.incites.thomsonreuters.com/>

- Check the typical period of publication
- Select the first target journal with supervisor and check the style of the journal
- Do not ignore the format of ‘short note’ or ‘technical note’ or ‘brief communication’ in journals. If you have a neat idea/result, you do not need to wait for more results to make it a full article. 2-4 pages note should be considered a good channel to communicate with readers. (Warning: Do not try to write too many notes, just because it is counted ‘one paper’ in your resume.)

Preparation of writing a manuscript

- Read carefully a couple of important journal paper published in the target journal on the similar subject (**so-called mother papers**) and familiar with the writing style and emphasis of the target journal
- **Check whether you make best of the previous works in your group, since every paper is a continuation of previous works and it will be better to have some references from your group in a new journal manuscript**
- Prepare two possible titles (each representing a different emphasis)
- **Prepare 1-2 pages outline of Introduction, Main sections/subsections, Conclusion with all the figure captions (some of them about verification/validation)**
- **Consult with supervisor and finalize the title and time schedule of writing the manuscript**

Writing a manuscript

- Highlights

Write 3-5 short sentences (directly related to ‘2-3 original outcome items’ and ‘why they are novel and important’)

Check the typical highlights in the target journal and make sure you do similarly

Check whether highlights are properly reflected in Abstract, Introduction and Conclusion

-Make sure 3-5 full days completely devoted to writing Abstract, Introduction, and Conclusion

-Abstract

Remind yourself how important the abstract is

Do not expect your supervisor will revise it later on. You should put your whole energy into writing a good abstract.

Do not write too short or too long.

Use Highlights and some important sentences from Introduction and Conclusion or vice versa

-Keywords

Choose 4-5 keywords and put important ones first

Choose them based on target audience and novelties of your work

-References

Select very carefully 20-50 references on the subject of your work

Do not forget to cite journal papers on the similar subject published by our group and by domestic journals in the reference

Select references more relevant to your work and (remove not-so-important references)

Select them from important (original source) journals (rather than conference paper, internal report, books, or low-level journals), and from recent ones (rather than very old ones; of course, the old masterpieces must be retained)

Make sure references (at least 5) from the target journal.

Put/mention important references first in the reference.

Make sure reference style matches exactly with the target journal. (Do not leave any typos such as Capital, order of first and last names, and so on.)

Tailor the list depending on the engineering-oriented, the computation-oriented, or fundamentals-focused

-Introduction

Remember writing a good Introduction on your own is not easy (so you have to secure enough time) and is indeed the most important quality you have to learn during PhD study

Introduction usually consists of 5-8 paragraphs. Write a short memo on what kind of explanation/argument/claim will be used for each paragraph. Only after you feel comfortable in flow of paragraphs, begin to actually write the paragraphs.

Do not try to write too long. Long introduction with pointless arguments and in poor English is the worst Introduction.

Distinguish the role of Introduction (inviting curiosity and making audience sharing the importance/novelty of your work) and Conclusion (a short re-emphasis of what you claimed in Introduction, description of what we learned, and perspective of future works)

Choose contents based on the scope of the journal. For example, avoid extensive numerical explanations in engineering oriented journals or vice versa.

Making sure you highlighted the novelties/importance of your work in Introduction, in particular, in case of long Introduction. (Reviewers are busy so that such should be written obvious.) For example, highlight with *Italic font*; "... *To the best knowledge of the authors, there is no previous work on application of high order DG method to solving two-fluid model of dusty gas flows...*"

After writing a draft of Introduction, try to revise several times very carefully (morning time is preferred), based on: 1) order of references (since important ones should come first); 2) good English; 3) compelling/more persuasive arguments and so on.

-Main sections/appendix

Organize sections and subsections very carefully

Choose very carefully the title of sections and subsections. Do not make too short. Do not be satisfied with what other similar papers do. Try to come up with the proper/detailed title such that 'just reading it' will represent the importance of the section/subsection. For example, 'Abnormal wave patterns in dusty gas flows via numerical experiments', rather than just 'Numerical results.'

The most difficult/important part in main sections is 'Discussion' and so it should be treated that way. Just as the Introduction, after writing a draft of interpretation/discussion, try to revise several times very carefully, based on: 1) connection between what you said about the novelties/importance of your work and supporting results, usually shown by figures; 2) proper length (at least 3 pages); 3) some new interesting points you found during your work and your speculations on them, and so on. *The discussion will determine whether the so-called 'borderline manuscript' is thrown out right away (rejection) or can have a chance to revise (major revision), so that it is extremely important. (Remember the reviewers like to learn something new from volunteer review job.)*

Do not be afraid of adding appendix: if you have something, not essential in showing importance of your work but very useful to readers for their own works, appendix is a good place to accommodate it. Also, when the manuscript becomes too long in main sections, you can cut some of them and move to appendix.

-Conclusion

Remember Conclusion is not the same as Introduction. (Role is different.)

Conclusion usually consists of 3-4 paragraphs in 1-2 pages. As done in writing Introduction, write a short memo on what kind of summary/re-emphasis/perspective will be used for each paragraph. Only after you feel comfortable in flow of paragraphs, begin to actually write the paragraphs.

Do not try to write too long. Long conclusion with Copy&Paste of Introduction is the worst Conclusion.

Note Conclusion is about a short re-emphasis of what you claimed in Introduction, description of what we learned or new interesting results you found but you don't know at time of writing, and perspective of future works, and so on. Sometimes you can add a glimpse of what will come next, in case when you already have some new ideas/results

on the same subject, but you do not want to unveil all of them in the present paper. (Make readers hooked on what you will do as well as what you are doing.)

Some examples of perspective of future work

... Extension to more complicated gases will present nontrivial challenges. For example, the rotational nonequilibrium effect in diatomic gases will make the constitutive equations more complicated. It is also expected that the work involving a gas mixture will become considerably complicated, but the same algorithms should be applicable. The results of studies of these problems will be reported in due course. ...

... Based on the successful implementation of the parallel explicit DG solvers in the present work, applications of these methods to rarefied and microscale gas flows of complex geometry will be the next topic of the present line of research. Further, the current methodology may be applicable to the efficient computational simulation of turbulent flows, in particular, for the second-order Reynolds stress model, since similar types of extra nonlinear equations of Reynolds turbulent stress need to be calculated in conjunction with the conservation laws. We hope to report the results of studies of these problems in due course. ...

-Equation

Remember how the equations look like is also important

Use 'Math type equation' rather than 'inserting symbols'

Select the type of numbering; for example, (1)-(100) or (1.1)-(4.20)

Align the numbering to the end of right column

Be careful in choosing the font of equations

Making sure proper referencing of equations

Check whether no symbols are left unexplained/undefined and their order/redundancy

-Figure

Remember how figures look like is very important

Try to come up with new way to present your important results. (Do not be satisfied with how other people prepared the figure.) New/improved way to plot figures is like presenting new research results.

Prepare a couple of new figures/schematic with PPT to help readers in understanding your problem and claims

Be careful in choosing the (consistent) font of (proper) words, contours level, and the type of lines inside the figure. Otherwise, you will need to revise figures several times later on, which may be very time consuming.

Decide whether colorful figures will be used. Otherwise, change the color to white/black and gray. Also modify color lines into symbolized lines. (Note: color images are allowed in most of international journals through only web version option. If you want it printed in color, you have to pay a large amount of fee.)

Try to squeeze figures when there are too many results.

Be aware of what are units of coordinates in the figure.

Save the image at least in the level of 300 dpi, since some journals request high quality.

Suggesting Referees

- Try to suggest two (fair, not arrogant) potential referees with high expertise in the field
- Potential reviewers

Someone you had met in the past or had e-mail discussions before

Suggesting authors of papers you referred but had never met is risky, since editors will assume him (or her) friendly to you and thus editors will consider that fact in the decision process. Therefore, do not suggest them. Let editors themselves find those authors.

Try to build good academic relationship with (international) potential reviewers in the field by attending conferences/seminars (or by inviting them to your group) and contact via e-mail to discuss research whenever possible and take memo.