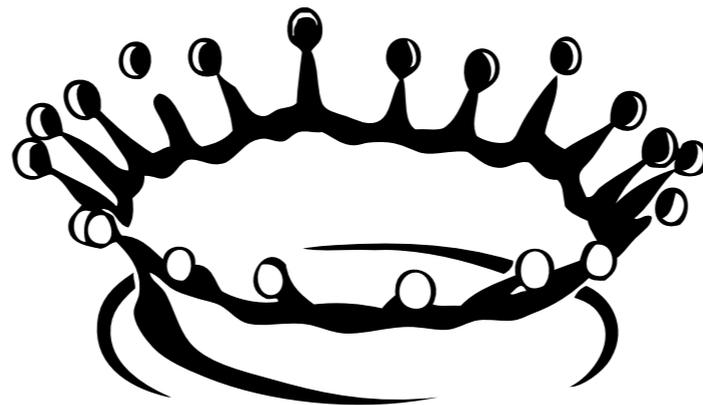


Reading and writing papers

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Physics of Fluids

Read the papers
in your field!

1. Classics
2. New papers, i.e. follow the literature
(tell us about it, not vice versa)

Why read papers?

- Papers are stimulating: you get ideas for your own work!
- Papers teach you technical skills
- Read new papers and also new papers of your colleagues in the group
- You learn how to write a paper, and how it should NOT be done

How to read a paper

- Have a look at the figures and their captions first.
- Read the abstract
- Read the conclusions
- Read the introduction
- Read the full paper
- (Work through the full paper equation by equation, if required)

How to stimulate paper reading?

- Your curiosity should drive it!
- Journal seminar
- Dice seminar?
- Wednesday seminar
- Seminars, and conferences give stimulus

How to write a paper?

Bad papers list results,
good papers make a point!

How to write a paper: crucial steps

- What's the point of the paper?
- Write the abstract first: make the point therein
- Select and design figures to convey the point
- Outline: headline of (sub)sections of paper

Figures of papers

- For each figure answer: what is the point of the figure?
- They should serve to make the point of the paper
- Don't put too much information in the figure
- But don't waste space, either
- Numbers on axes and labels: large
- Curves: thick
- In the body of the paper: Describe what you see in the figure
- Vector format!

How to write a paper - the process

- Write the body of the paper along the figures, start with result section first, then conclusions, then method. Handwritten first version not bad. Improve while typing.
- Introduction is most difficult, write it last and put your work in the context (but know the context before you even start your work). Explain why your work is important in this context.
- Identify gaps in the paper.
- Do further research to fill these gaps.

Iterative process!

How to write a paper: details

- Logically connect the sentences.
- Develop thoughts step by step, in correct logical order
- I.e., try to tell an interesting story in your paper.
- Ask questions at the beginning of the paragraph and then answer that question in the paragraph.
- Logically connect the paragraphs.
- Each paragraph must have a function.
- Be precise
- Use spell check
- Put commas where they belong: A, B, and C

References

- Give credit to your peers, i.e., give many references (and know their work).
- Use our BibTeX treasure, in the standard format
- Do a Web Of Science search for work in your field. Check out those papers.

...our biggest capitals:

1. Scientific honesty (see “Trust and the Future of Research”¹)
2. Ideas and visions
3. Good taste of problem
4. Precision
5. Technical skills
6. Be critical
7. Hard work

¹Whitbeck, C. Trust and the Future of Research. *Physics Today*, 57(11), 48-53 (2004)