

Writing a scientific paper

CRK

The process

- Submission
- Wait... (at *least* one month), pestering the editor (politely!) is a good idea
- Get referee report
- Fight down feelings of personal hurt
- Answer referee report (politely!)
- Wait...

Most important points

- Completeness
- Honesty
- Clarity
- Simplicity
- Citations

Completeness

- Can you follow your argument from beginning to end?
 - Explain it to someone else
 - Try picking holes
- Have you done a *believable* error estimation?
 - If you're not sure ASK!

Completeness

- Is there anything more to do?
 - Additional analysis
 - More tests
 - More predictions
 - ...
- Sometimes difficult to tell where to stop
 - If in doubt, ask!

Honesty

- Are there data points contradicting your conclusions? If so, say so.
- Anyone done this before? Or something similar? Honestly no-one?
- Are there any 'leaps-of-faith', also known as 'speculation'? Mark them clearly as what they are!

Clarity

- No-one knows this stuff as well as you do
- Try to imagine what it was like when you didn't know so much
- *Structure!*
- Discuss all steps in the argument
- Do *not* discuss common techniques

Simplicity

- Use simple language

Simplicity

- Avoid long sentences
 - Not: 'We calculate the size of the source from the angle of the source on the sky which is determined from radio observations carried out with the VLA during our recent observations of sources in our samples selected according to their redshifts.'
 - But: 'We selected our source according to their redshifts. We then observed them with the VLA during our recent observing campaign. We calculated the source size from the angle of the source on the sky.'

Simplicity

- Use active voice:
 - Not: 'The source size is calculated from the observed angle of the source on the sky.'
 - But: 'We calculate the source size from the observed angle of the source on the sky.'
- Try to explain your argument as simply as possible.

Citations

- Back up everything you say with a reference.

...unless it's your own work.

- Show your depth of knowledge through references
- Chances are one of the authors will be your referee!

Refereeing

General rule:

'Always assume that your referee will spot the problems, just like you would. Don't count on a sloppy referee!'

Do not assume no-one will spot omissions!

General punishment:

Embarrassment

Preprint servers

- Submit before, during or after refereeing...
- Tricky one!
- The safe bet: If the referee didn't spot a mistake, chances are there are none.
- BUT: Time-sensitive stuff.
- In the end: Case by case decision.

Publishing and PhDs

- Publish early and often
- British PhDs are shorter than anyone else's
- If you want a Postdoc, people *will* count publications
- Bring this up with your supervisor early
- Talk about order of authors

Conferences

- Give you a publication
- No refereeing, so can be more speculative
- *Networking!*