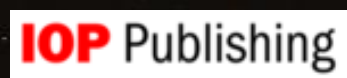


# Workshop for Journal Authors and Referees



# Outline of Workshop

We will cover three main topics split into 2 sessions:

## **Session A: 10:30 – 12:30**

- Writing a good paper

## **Session B: 14:15 – 15:30**

- Submitting to a journal
- The review process

## **15:30 – 18:00**

- General question and answer sessions with the Editors



Presentation covering the main points

**Interactive:**



You will be asked to do some work too!

Please ask questions throughout the talk



You will receive a USB with the presentation and lots of additional information such as author instructions

# What is scientific writing?

- Reporting original research in journals
  - Journal articles, papers, letters
- Broader communication
  - Review articles
- Professional communication
  - Grant proposal, technical reports
  - Oral and poster presentations

We will focus on writing journal articles but principles apply to all forms of scientific writing.





**Writing a good paper**

# Writing a good paper

*What do you need to consider before writing a research article?*

We said this would be interactive ...

For the next 10 minutes talk to your neighbours, in groups of two, three or four, about what you consider before writing a paper.



# Writing a good paper

*What are the most important things to consider when writing a research paper?*

- Do you have original results to report to your peers?
- What should the format of the article be? Do you have all of the references?
- Which journal do you want to publish in and do you understand their submission procedures?
- Do you understand the process and requirements? E.g. do you need specific permissions to publish figures?

All of the above, but the most important step is

**PLANNING**

# Writing a good paper

## Planning:

- Start from basics
  - Block out time to think about what you want to include in the article – what data, tables etc.
- Developing an outline is a good next step in writing an article
  - Acts as a roadmap to help organise and develop the article
- Have in mind to which journal you want to submit your article
  - Are there specific journal instructions/ requirements?





**So, what do you need to consider?**

**An article needs to report a major advance or a new approach**

**It should be set in context of previous research by yourself and others**

# What does this mean?

In groups of two, three or four, again discuss what you think qualifies as a major advance or a new approach? What is the difference between major advances and incremental work?

What do you need to do to put your work into context?

# So, what do you need to consider?

The work you want to publish should be original and new science:

- Check the literature
  - What work has been done in this area already?
- Is there enough new data for publication?
  - Incremental steps from previous work is not good enough, e.g. adding 10 objects to a previous survey of 150 is not a significant new result
- Is the hypothesis proposed original? Or supporting someone else's theory?



# Steps to an outline

Questions about your topic (e.g. supernovae, black holes, etc.)

- What is your topic of discussion?
- Why is it important?
- How is it related to previous work in the field?
- What is new or different about your contribution?
- Who are the authors?

Start answering these questions and it will help you to organise the outline.

- Refer to your answers
- Write down major ideas and related topics that come to mind
- Continue to add related ideas and sub-topics

# General structure of a journal paper

Generally accepted form of scientific papers called the **IMRaD** approach (but we have added one addition!):

**I**ntroduction

**M**ethods

**R**esults

**D**iscussion

**C**onclusion

Editors and reviewers expect your article to follow this basic form but there may be some variation

# Consider the audience

- How broadly understandable do you want your article to be?
  - As a guideline at least 75% of the material in your article should be understandable to most researchers who work in astronomy.
- Limit jargon or technical terms
- Avoid speculation or anecdotes – keep to the facts
- Keep it concise



# From planning to writing

After you have planned and outlined your article tackle the sections of your article

- Title and Abstract need careful consideration
- Introduction
- Main section outlining what you did, methodology
- Results
- Discussions
- Conclusions
- Acknowledgments
- References/ bibliography

# Title and Abstract

The title and abstract will be ***the most visible*** part of your article because:

- It acts as a short summary helping researchers to assess quickly what your article is about
- It's used as the main source of information for abstracting and indexing services and search engines

# Title and Abstract

## **Titles:**

Need to be short, accurate and give a good idea of the main result or conclusion in the article.

## **Abstract:**

Summarises the whole paper into a single paragraph. Follow the outline of the paper i.e. one sentence on the goals or reason for the paper as in the Introduction, another on methods, a few on results and a last sentence on the conclusions. Most journals do not allow references in the abstract.



# Some good example titles

Scientific observations at total solar eclipses

Cassini-Huygens results on Titan's surface

Brightness temperature for 166 radio sources

NSV 11154 is a New R Coronae Borealis Star

AC Piscium, A Short Period Cool Dwarf Algol Binary

# Some examples of Abstracts

Research in Astron. Astrophys. 2009 Vol. 9 No. 6, 613 – 634  
<http://www.raa-journal.org> <http://www.iop.org/journals/raa>

---

*Research in  
Astronomy and  
Astrophysics*

---

## INVITED REVIEWS

### Scientific observations at total solar eclipses

Jay M. Pasachoff

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Received 2009 April 3; accepted 2009 May 7

**Abstract** The occasion of the longest totality of an eclipse in the 18 yr  $11\frac{1}{3}$  d saros cycle leads to taking stock of the scientific value of ground-based eclipse observations in this space age. Though a number of space satellites from the U.S., Europe, Japan, and Russia study the Sun, scientists at eclipses can observe the solar chromosphere and corona at higher spatial resolution, at higher temporal resolution, and at higher spectral resolution than are possible aloft. Furthermore, eclipse expeditions can transport a wide variety of state-of-the-art equipment to the path of totality. Thus, for at least some years to come, solar eclipse observations will remain both scientifically valuable and cost-effective ways to study the outer solar atmosphere.

**Key words:** Sun: eclipses

## 1 INTRODUCTION

## ***Hubble Space Telescope Far-Ultraviolet Spectroscopy of the Dwarf Nova VW Hydri in Superoutburst<sup>1</sup>***

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*Received 2006 August 31; accepted 2007 February 7; published 2007 March 2*

**ABSTRACT.** We obtained three consecutive *Hubble Space Telescope* spectroscopic observations of a single superoutburst of the dwarf nova VW Hydri. The spectra cover the beginning, middle, and end of the superoutburst. All of the spectra are dominated by strong absorption lines due to C III (1175 Å), Ly $\alpha$  (1216 Å), N IV (1238 and 1242 Å), S II (1260–1565 Å), S III (1300 Å), C II (1335 Å), S IV (1394 and 1402 Å), and C IV (1548 and 1550 Å). We discuss the evolution of the far-UV energy distribution and line structure during the superoutburst. We note the absence of any P Cygni line structure in the Space Telescope Imaging Spectrograph spectra. Using state-of-the-art accretion disk models by Wade & Hubeny, we have determined for all three spectra accretion rates for two white dwarf masses, 0.55 and 0.8  $M_{\odot}$ . For both white dwarf masses, the accretion rate during superoutburst decreased by a factor of 2 from early to late in the superoutburst. The average accretion rate during superoutburst is  $(3\text{--}6) \times 10^{-9} M_{\odot} \text{ yr}^{-1}$ , depending on the white dwarf mass.



## AC Piscium, A Short-Period Cool Dwarf Algol Binary

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AND

W. VAN HAMME

Physics Department, Florida International University, 11200 SW 8th Street, Miami, FL 33199

*Received 2011 July 20; accepted 2011 September 7; published 2011 October 6*

**ABSTRACT.** AC Piscium was found to be a near-contact, cool dwarf (K7-M4 type), short-period ( $P = 0.335$  day) binary system. The binary is in a semidetached, Algol-type configuration. The binary could also be classified as a precontact W UMa binary. This system bears future study to further determine its absolute configuration and orbital evolution.

## NSV 11154 Is a New *R* Coronae Borealis Star

NUTSINEE KIJBUNCHOO,<sup>1</sup> GEOFFREY C. CLAYTON,<sup>1</sup> TIMOTHY C. VIEUX,<sup>1</sup> N. DICKERMAN,<sup>1</sup>  
T. C. HILLWIG,<sup>2</sup> D. L. WELCH,<sup>3</sup> ASHLEY PAGNOTTA,<sup>1</sup> SUMIN TANG,<sup>4</sup>  
J. E. GRINDLAY,<sup>4</sup> AND A. HENDEN<sup>5</sup>

*Received 2011 August 15; accepted 2011 August 22; published 2011 September 12*

**ABSTRACT.** NSV 11154 has been confirmed as a new member of the rare hydrogen-deficient *R* Coronae Borealis (RCB) stars based on new photometric and spectroscopic data. Using new photometry, as well as archival plates from the Harvard archive, we have constructed the historical light curve of NSV 11154 from 1896 to the present. The light curve shows the sudden, deep, irregularly spaced declines characteristic of RCB stars. The visible spectrum is typical of a cool ( $T_{\text{eff}} \lesssim 5000$  K) RCB star, showing no hydrogen lines, strong C<sub>2</sub> Swan bands, and no evidence of <sup>13</sup>C. In addition, the star shows small pulsations that are typical of an RCB star and an infrared excess due to circumstellar dust, with a temperature of  $\sim 800$  K. The distance to NSV 11154 is estimated to be  $\sim 14.5$  kpc. RCB stars are very rare in the Galaxy, so each additional star is important to population studies leading to a better understanding the origins of these mysterious stars. Among the known sample of RCB stars, NSV 11154 is unusual in that it lies well above the Galactic plane (5 kpc) and away from the Galactic center, which suggests that its parent population is neither thick disk nor bulge.

# Introduction of the paper

The introduction is the first part of your article that contains substantial amounts of text. It should:

- Make the main goals of your study clear
- Give a statement of the problems that you are studying in the article
- Provide the reasons for conducting the investigation
- Give an overview of the methods used
- Provide a background and context for the study



# More about the introduction

Some examples of questions that should be answered in the introduction:

*What is new about the study?*

*Do the results agree or disagree with previous studies?*

Warning: Be careful to avoid plagiarism or self-plagiarism. No sentence or paragraph can be repeated from previous publications, even from your own work. Ideas can be paraphrased but not copied exactly.



# Background literature is part of the Introduction

- Background literature relates your study to previously published research.
- It is best to only discuss literature that is relevant in the introduction. Try to avoid long historical reviews of literature unless you are specifically writing a review article. But...
- Consider including a reference to the most recent review article on the topic and include the most relevant references to work done.

# Important points about good introductions

Good introductions are not necessarily long. Approximately one to two pages should be sufficient for most topics.

Succinct introductions that only include useful information are best.

# Now we consider different majors

- Up to now all papers, regardless of topic or major, followed the same form. At this point, we must consider differences in topics or major fields of study.
- Articles about theoretical topics or computer modeling studies usually have somewhat different structures than articles about observational or experimental topics.

We will examine each of these in turn.

# Theoretical or Computational Work

Theoretical topics like cosmology, high-energy physics/astronomy and black holes usually have a section that thoroughly discusses their mathematical development.

This would usually be called the “Methods” section under the traditional “IMRaD” scheme.

Researchers can feel free to add considerable description about their theoretical or computer development.



# Observational or Experimental Work

In articles about observational or experimental work, the corresponding “Methods” section discusses details of their observations or experiment. This section describes aspects of observational or experimental equipment.

The methods section also highlights how the researchers analysed their data.

Feel free to add multiple subsections as necessary.

# Results and Discussions

## Results and discussion:

- Provide an adequate discussion of the significance of the results
- Show how your results and interpretations compare and/or contrast with previously published work
- Discuss the theoretical implications of your work as well as any practical applications
- State your conclusions as clearly as possible
- Represent data in an organised way and ensure that tables and figures and references are in order
  - E.g. table 5 should not be referenced before table 4
- The importance of tables and graphs

# Results section

The results section details the findings and outcomes of your study.

This is especially useful in observational, experimental or data analysis studies.

This section often has tables with numerical data sets.

If previous studies related to your research have been published, include a comparison of values from the other studies with your own values.

# Interpreting your results

- After you present your results, you should give some interpretation of them.
- This is generally called the “Discussion” section.
- Both theoretical/computational and observational/experimental researchers interpret the outcomes of their studies.
- Think about how to express the interpretation of your research.
- We can examine some approaches to this.



# Discussion for Theoretical Studies

- Describe the advantages of your new method or model.
- How is it different from previous work?
- Besides your application or model, does it have other applications?
- How might your model be tested through observation or experiment?
- What future research plans related to this work do you have?

# Discussion for Observational Work

- Do the results agree with the current model of the phenomenon you are studying?
- If not, how do your results change the current understanding?
- Are you surprised by the outcome of your work?
- How does this advance the current state of knowledge of your field?
- What are your plans for future related research?

# Conclusion of your article

The conclusion summarises the information in your article and restates the major points.

It attempts to tie all the different parts of the article together into a satisfying end.

Try to answer all the questions you initially posed in the introduction.

Conclusions are usually relatively short, around one page of text.

# References

- Cite the right references
  - List only significant published references
  - Check all references for accuracy against original source
  - Follow reference style
    - Name and year
    - Order alphabetically/numerically as they are cited in the paper  
(**check the author instructions for the journal for preferred style**)
- Ensure that all references in the list are used in the text and vice versa
- Acknowledgements
  - Make sure you acknowledge appropriate sources, e.g. funding, expertise, equipment



# Figures and tables

## Figures:

- Most journals require .eps files but some will accept .pdf file (**check the author instructions for the journal**)
- Lines must be dark enough to be seen when reduced to fit into the journal format, e.g. dual column format
- Consider how figures will look if produced in colour online but greyscale in print
  - Take extra care when using symbols or dashed or dotted lines to make the figures meaningful in print as well as online

# Figures and tables

Tables:

Styles vary between journals but most do not use vertical lines.

Use the specific journal author instructions to check styles for each journal before submitting your article.

# Getting Help/Feedback

Throughout the process it is always good to get someone else to help or give you feedback.

People to consider:

- Your supervisor
- Your colleagues in your group
- Your colleagues in other groups (if you need to write for a more general audience)

Alternatively there are mentoring services e.g.

- [AuthorAID](#) : global online network that provides support, mentoring, resources, and training for researchers in developing countries

# Preparing your manuscript - Summary

1. Follow the rules:
  - Instructions for Authors, Author Guidelines
2. Organise the material:
  - Title
  - Abstract
  - Introduction
  - Materials and Methods
  - Results
  - Discussion
  - Conclusions
  - References
  - Acknowledgements
3. Ensure that the paper is of the right length
4. Write concisely
5. Write and allow time for rewriting
6. Use correct grammar and spell check
  - Have your paper read by colleagues, by a native English speaker, by scientists in related fields
  - Make necessary revisions
7. Use figures and tables appropriately
8. Make sure the paper is in the correct format and style
9. Make sure the paper is complete
  - All figures, tables and references
10. Clearly identify the corresponding author and contact details





A deep-space photograph of a nebula, likely the Helix or similar, showing intricate filaments of interstellar gas. The central region is a bright, glowing white and pinkish-white. From this center, large, billowing clouds of gas extend outwards. One prominent set of clouds is a vibrant red, while another set is a deep, ethereal blue. The background is a dark, velvety black, densely populated with numerous stars of varying brightness, some appearing as sharp points of light and others as soft, out-of-focus glows.

**Some common errors**

# Some common errors

- Check to see if the journal requires the full names of authors
- Check the spelling in the article using a spell checker but be careful of auto-corrections!
  - Common spelling mistakes include:  
Astrotronomy instead of Astronomy  
Boradband instead of Broadband
- Do not use contractions  
This is a shortened version of a word that uses an apostrophe (') e.g.  
Do not ~ don't; will not ~ won't; should not ~ shouldn't; cannot ~ can't



# Some common errors

## **Be careful with abbreviations:**

These are shortened groups of letters representing longer words

What do these mean to you?

**WWF?**

**CCTV?**



# Some common errors

- Abbreviations continued:

You may know the abbreviations below but does your audience?

Sloan Digital Sky Survey – SDSS

Coronal Mass Ejection – CME

Zero Age Main Sequence – ZAMS

Asymptotic Giant Branch – AGB

Weakly Interacting Massive Particles - WIMPS

# Some common errors

Punctuation: When you use punctuation with quotation marks (“”), put punctuation inside the quotation marks.

E.g. “This appears to be a subtle charge transfer problem.”

Pay attention to time expressions:

Ensure that you use consistent tenses, either past or present.

E.g. This system has also contribute~~s~~d to the search for variable stars in clusters.

Try and avoid starting sentences with “And” or “But”. Although not technically wrong, it can be an awkward construction that can lead to confusion for the reader.

# Some common errors

- Their and There
- Compliment and Complement
- Principle and Principal

Check the plural form of some words:

E.g. Nucleus and Nuclei







# Submitting to a Journal

# Selecting the right journal

An important decision... All the journals below are good journals but are they the audience you want for your paper?



The European Physical Journal E -  
Soft Matter and Biological Physics



Bioinspiration & Biomimetics



Journal of Biophotonics



# Selecting the journal

- Decide as early as possible on your first choice journal
- Check the audience and scope of the journal
  - You can find it in the printed version or on the Web
  - Contact the Publisher or Editor if in doubt
  - Browse the back issues to understand the journal's style and scope
- Select the journal that will provide the most recognition and the right audience for your work
- Recommendation from a colleague

# Possible differences in journals

- Submission requirements
  - Cover letter
  - PDF or source files
  - Reference format
  - Table format
- Supplementary information
- Different requirements re: copyright/licensing (see later notes)



# Before submitting your article

- Check that you have approval from all co-authors
- Are there any internal procedures that you need to follow that are specific to your institute or group?
- Have you obtained all of the permissions you need for figures you may have used that are from others' work?
- Have you agreed the funding to pay for colour, pages, open access (where appropriate)?

# Submitting your paper

- Details you will need to provide:
  - Full details of authors:
    - affiliations / addresses of all authors
    - contact details of ‘corresponding’ author
- Nominate an alternative contact if the corresponding author is not available
- Copyright form (which may have to be signed by all authors)
- Follow ‘Instructions for Authors’

# Ethics in writing a scientific paper

- The article should not be under consideration by another journal
- Get permission to reproduce other material that has been published elsewhere
- Many journals now have an ethics policy
- Plagiarism and fraud can lead to serious consequences

# Copyright and Licencing

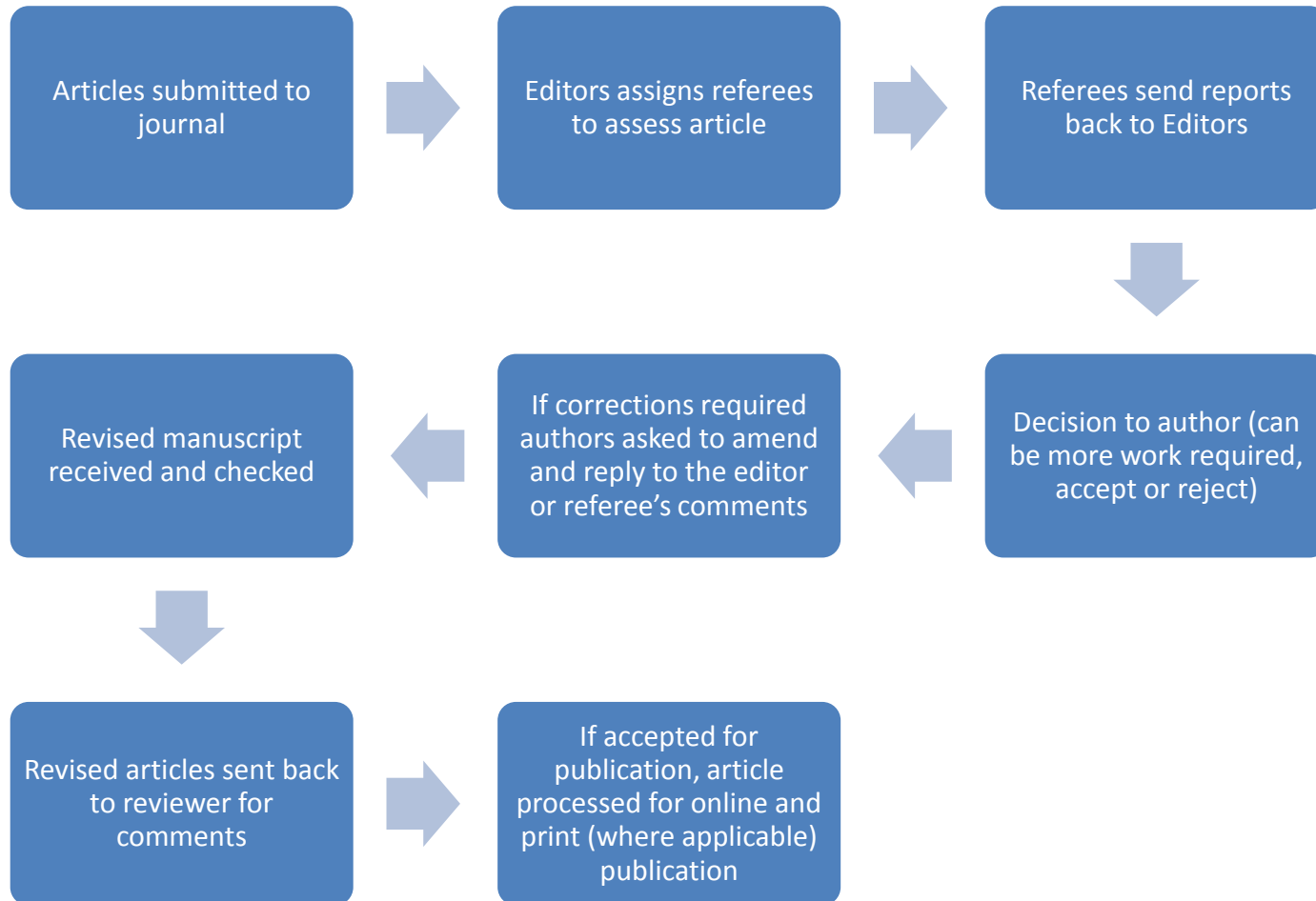
- Copyright
  - Protects an original idea expressed in the paper
  - Often journals require transfer of copyright to the publisher
- Permissions to use copyright-protected material
  - Generally require written permission of author and publisher
- Licence agreement
  - Typical for open access journals or if Institute retains copy
  - Wide variety of Creative Commons licences (Attribution, Non-commercial, No-derivative works, Share-alike)





# The review process – what to expect

# Very general outline of peer review process



# What happens next?

- Editor acknowledges your paper
- Preliminary decision to send to referees or not
  - In scope of the journal?
  - Is the manuscript complete?
- Editor selects referees for the paper
  - Independent experts
  - Broad knowledge of the field
  - Previous record of fair and constructive refereeing
  - Are available and have the time



# What happens next? (continued)

- Normally require 1 (occasionally 2) referee report, depending on the journal's policy
- Referees send their reports back to the Editor
- So-called 'single blind' referee process
  - Referee knows who the author is
  - Authors are not informed who the referee is

**NB: Some exceptions where referee may choose to disclose their name.**

- Editor makes decision based on referee reports
- Adjudicator is selected if the reports are conflicting



# What is peer review?

- Independent assessment by experts in the field
- Referees provide constructive criticism and feedback on your paper
- A 'filter' for scientific quality control
- Publishing a paper in a peer-reviewed journal gives more credibility to your work than if you post it on your own web site
- Peer review is an essential part of obtaining a grant or publishing in a journal

# Referees' report: Scientific Quality

- The ideal referee report
  - Constructive advice
  - Suggest possible improvements / revisions
  - Point out any omissions, errors
- Scientific merit: significant new results and originality
- Accurate and correct
- Sufficient discussion of the context of the work, and suitable referencing
- Suitable material for the Journal
  - Right subject coverage
- Overall objective:
  - To publish good science in understandable language

# Referee report

- Title: is it adequate/appropriate?
- Abstract: is it complete by itself and suitable for direct inclusion in an abstracting service?
- Diagrams, tables, and captions: are they clear and essential?
- Text and mathematics: are they brief but still clear?
- Conclusion: does it summarise what has been learned and why it is interesting and useful?
- References: objective and up-to-date
- Clear writing and communication of ideas, readability and discussion of concepts

# The publication decision

You will get an email from the editorial office:

- Accept
- Modify / revise
  - Comments and suggestions from referees
- Reject

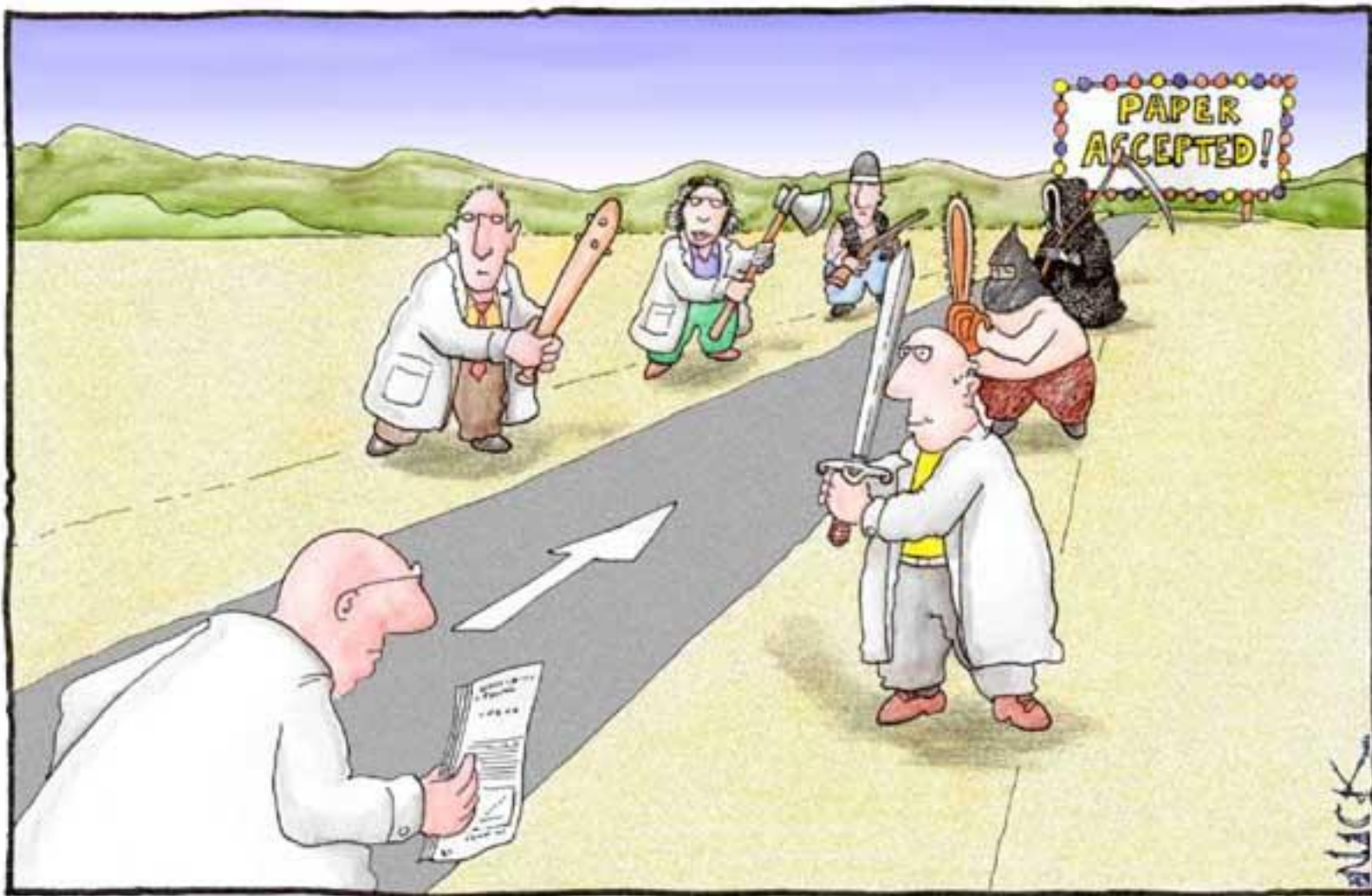


# Responding to referees' comments

- Read referees' report and put away for a day!
- Read them again!
- Respond to each and every comment specifically
- Keep a list of your changes
- Where you disagree, explain why
- If referee misses a point it is not necessarily his/her fault, you may not have explained it as clearly as you think
- Be polite!
- Prepare a detailed covering letter with your response

# If your paper is rejected

- Do not despair: treat referees' comments as a free expert advice
- You can re-write your article taking into account the suggestions of the referees and re-submit it
- If you think the review was unfair, appeal to the journal by sending a letter and explaining why you think your work did not receive a fair treatment



Most scientists regarded the new streamlined peer-review process as ‘quite an improvement.’



# If your paper is accepted

- Great - celebrate!
- The journal will expect you to check your proofs rapidly and carefully
  - Nominate another person if you are unavailable
  - Give one copy of proofs to somebody else to read
  - Reply to editor's queries



# How to be a good reviewer

Are you an expert? Conflicts of interest? Busy?

Accept or decline invitation early – don't ignore

Be constructive

Comment on accuracy, novelty, interest, referencing, clarity and presentation

Provide detail to aid authors to improve their paper

Justify your decision

No need to correct the English – unless it affects the scientific content or understanding

# Hints for referees

When you first receive the refereeing request:

Let the journal know as soon as possible whether or not you will be able to report.

If you cannot report on the paper:

Tell the journal why you are declining. This will assist the journal when sending you future requests.

Consider delegating to a colleague and ensure that the journal is aware of their contact details.

# Hints for referees

When writing your report:

Give your overall impression/decision clearly either at the very beginning or very end of the report.

E.g. “I do not recommend this paper for publication because...”

“This paper will be suitable for publication after the following revisions are made” etc.

Write your report in full sentences, bullet points are fine

Provide enough detail to justify your decision and to aid authors to correct their papers

# Hints for referees (cont.)

Comment on the content of the paper, in terms of:

- Scope
- Novelty
- Quality
- Length
- Figures
- References

Read the instructions for each journal you report on, and familiarise yourself with the journal before preparing any report.



# Summary

We have covered a lot of information!

The presentation is on the USB along with additional supporting material that includes:

- Author instructions for all the Astronomy journals or links to the relevant information.
- A copy of ***A Guide to Effective Publishing in Astronomy***, coordinated by Claude Bertout, Chris Biemesderfer, Agnès Henri
- General guidelines on peer review and writing papers



# Summary

There will be more informal sessions following this if you would like to discuss specific questions or ask the Editors about their journals.

**Thank you for your attention!**

# Some additional links/ resources

- [AuthorAID](#)
- [COPE Best practice guidelines for journal editors](#)
- [Sense about Science](#)
- [Creative commons](#)