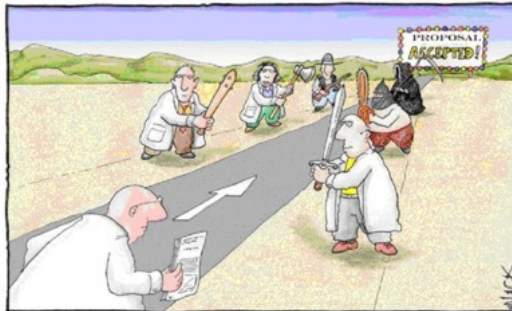


Physics 496 Introduction to Research

Lecture 8.0: Writing Referee Reports
(Lance Cooper, Tony Liss, Doug Beck)

A referee is not your average reader

Peer-Review

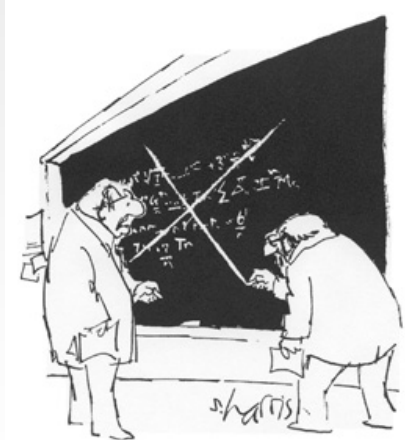


The average reader relies on the peer-review process to weed out questionable papers.

The referee (a peer) should be much more skeptical than the average reader.

Being skeptical is different from not believing.

Why referees are needed



That's it? That's peer review?"

- An enormous number of scientific articles are submitted daily (~90 just in HEP yesterday)
- Most journals rely on impartial, external reviewers to help evaluate, and decide the fate of, submitted papers
- This is generally performed as a service to the community, i.e., you don't generally get paid to referee papers!

What does a referee do?

From Physical Review Letters:

ADVICE TO REFEREES

Physical Review Letters aims to publish papers that keep broadly interested physicists well informed on vital current research. Papers are expected to satisfy criteria of **validity**, **importance**, and **broad interest**. We seek your guidance regarding how well this paper meets these criteria, as revealed by your answers to the questions which appear below.

Your assessment is particularly important with regard to scientific soundness. If you advise the editors that the paper is unacceptable for scientific reasons, it will not be published without further review. Your advice on the more subjective aspects is also requested. These aspects require a subjective judgment by you and a subjective editorial decision. Amplification of your point of view is therefore important. It is essential to cite references if the work is judged not new.

- **VALIDITY**
Is the work scientifically sound? If not, do you believe the paper can be revised to correct the scientific defects you find?
- **IMPORTANCE**
Does the manuscript report substantial research? Is the conclusion very important to the field to which it pertains? Is the research at the forefront of a rapidly changing field? Will the work have a significant impact on future research?
- **INTEREST**
Papers are of broad interest if they report a substantial advance in a subfield of physics or if they have significant implications across subfield boundaries. Is this paper of broad interest?

In some cases, the apparent importance and interest of a manuscript may be enhanced by stylistic revision. We welcome your suggestions and ask that you consider the following questions:

- Is there an introduction which indicates, to the interested non-specialist reader, the basic physics issues addressed, and the primary achievements? Is the research placed in the proper context, e.g., are the references appropriate and adequately discussed? Are assumptions clearly presented? Is unnecessary jargon avoided? Do the title and abstract stand alone? Are tables and figures, if any, well used and effectively presented?

The fundamental criteria for publication are validity, importance, and interest. Over the years, various statements of criteria have been published, and many of these retain value if they are regarded as secondary to the fundamental criteria. With that in mind, we ask that you consider the following guidelines:

- The focus of the journal is basic physics, and publishable Letters should conform to this emphasis. However, it is not our intent to exclude texts that might also contain important results in, for example, applied physics, biological physics, etc.
- The journal does not accept marginal extensions of previously published work. For example, when the discovery of a new effect in one system is published, reports of similar explorations in other systems are usually considered inappropriate for the journal's pages, as are confirmations of previous results.
- The journal declines publication of papers which appear to parcel research results into fragments for multiple publication.

We welcome speculative ideas provided that their consequences and ramifications have been sufficiently well considered and, to the extent possible, have been spelled out.

We hold the authors responsible for demonstrating adequate awareness of published prior research and for proper acknowledgment of colleagues. We invite the referees' comments on these issues, but we do not hold referees responsible for deficiencies, nor does the journal accept responsibility for them.

- Journal editors generally have established criteria for the suitability of publications in their journals.
- These criteria vary from journal to journal, and generally depend on the nature of the journal's readership
- Read these criteria carefully, and address the issues the journal editors would like you to address
- **The role of the referee is to provide an opinion as to whether the paper satisfies the stated criteria of the journal for publication!**

The *Physical Review Letters* (PRL) Criteria

Validity - Is the work scientifically sound? If not, do you believe the paper can be revised to correct the scientific defects you find? Are the arguments made to draw the conclusions logically constructed and well-founded?

Importance - Does the manuscript report substantial research? Is the conclusion very important to the field to which it pertains? Is the research at the forefront of a rapidly changing field? Will the work have a significant impact on future research?

Broad interest - Papers are of broad interest if they report a substantial advance in a subfield of physics or if they have significant implications across subfield boundaries. Is the paper of broad interest?

Accessibility - Is the paper written so that it is understandable by the broad PRL audience? Is there an introduction which indicates, to the interested non-specialist reader, the basic physics issues addressed, and the primary achievements? Are assumptions clearly presented? Is unnecessary jargon avoided? Do the title and abstract stand alone? Are tables and figures, if any, well used and effectively presented?

Essential Components of a Good Referee Report



(1). Briefly summarize the main points of the paper

- to educate the editor
- to convince the editor and other referees that you've actually read the paper (no joke!)

(2). Provide brief evaluations of the different criteria provided by the journal

These generally include:

- (i) the quality/appropriateness of the methodologies and techniques used in the research
- (ii) the quality of the logical arguments made to arrive at the key conclusions of the paper
- (iii) the clarity of the presentation

Essential Components of a Good Referee Report (cont.)



(3). Provide a recommendation for or against publication

Your recommendation can be equivocal if you provide sufficient discussion of the pros and cons of publication.

If you do recommend rejecting a paper, you can suggest alternate journals to which the paper might be more appropriately submitted.

(4). List essential and suggested changes to the paper

This is an important component of a report even if you recommend rejecting the paper, as your suggestions might allow the paper to be published elsewhere, or even in the same journal after revision.

Be clear and specific about your questions and suggestions so the authors can respond appropriately.

The Right Attitude: Referee's Golden Rule

“Review unto others as you would have them review unto you!”

You should approach refereeing a paper with a sense of constructive objectivity:

Avoid scientific bias about the subject matter or the general viewpoint of the field.

Ignore any preconceptions you might have about the authors involved in the work.

Keep in mind that someone probably put a huge amount of work into the result.

Your report should be written constructively:

Provide constructive criticism, expressed in a collegial manner, that can benefit both the authors and editors.

Collegially point out experimental problems, flaws in the authors' argument, or alternative interpretations not proposed by the authors.

Provide appropriate references of previous work if inadequate credit is given to previous work.

Provide timely reports