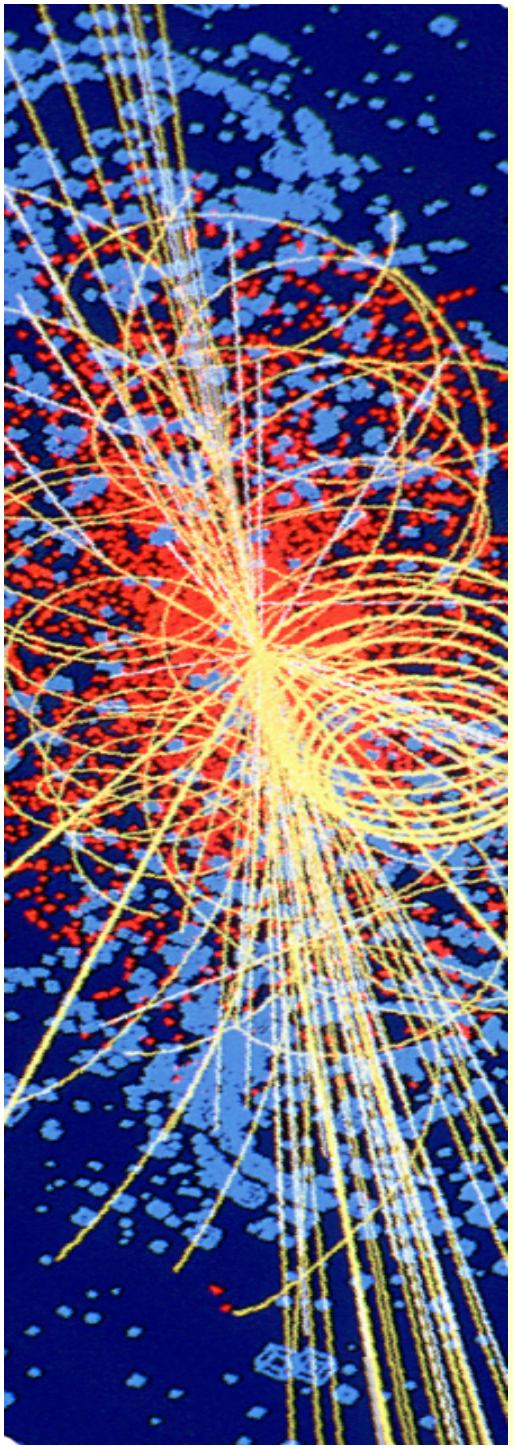


Peer Review - the HEP View

Mick Draper, CERN ETT Division

mick.draper@cern.ch

Open Archive Workshop, CERN 22-24th March 2001

Is this what a referee does ?

Peer Review - the HEP View

- This will really be a view from CERN
- I can't speak for all HEP, but have consulted colleagues in the three 3 main areas of research which produce publications which are sent to peer-review journals.
  - Experimental Physics
  - Theoretical Physics
  - Accelerator Physics
- HEP is a preprint dominated field

Experimental HEP

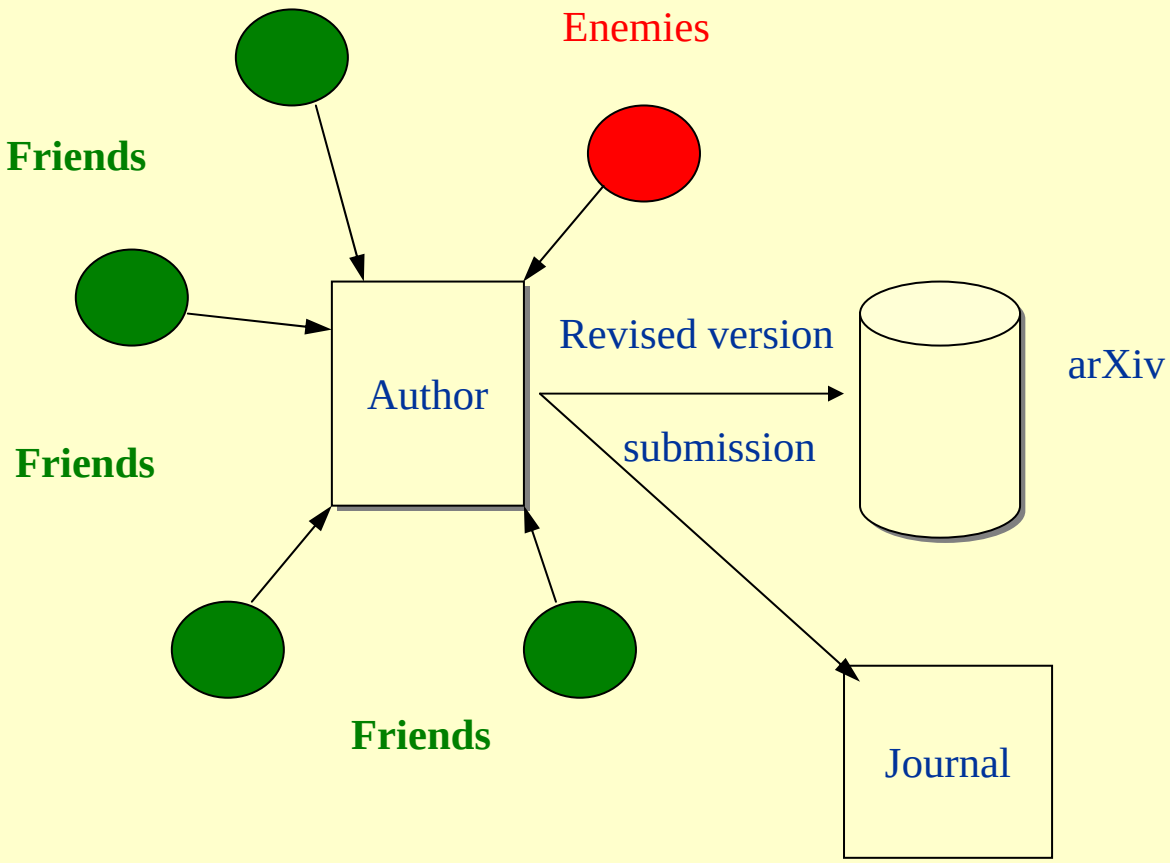
- The case of Experimental HEP is an interesting one:
  - HEP experiments are now done by large collaborations (e.g. ATLAS and CMS with almost 2000 physicists from 60 countries);
  - Inside such collaborations there is an internal review before any paper gets sent for publication (done by a small group of between 5-10).
    - Paper, in its almost final form, is then sent to the whole collaboration for review
    - For CERN experiments, a referee – external to the collaboration – validates the paper from a scientific and editorial point of view
    - This review process involves so many people that there is little 'added value' given by publishers' peer review;
- The experimental HEP community took a long time to participate in the LANL e-print archives
  - Probably because it did not match their way of working

A (small) part of the ATLAS Collaboration

Theoretical HEP

- HEP theoretical physicists work in much smaller groups than experimentalists.
- There is an active exchange of research ideas before publication, between colleagues or friends working in the same area.
  - The XXX LANL e-print archive grew out of this way of working.
- Theorists don't use journals as a research tool
  - They don't mind getting published there, but that is all.
- I have heard the view expressed frequently and forcibly that the publishers' peer-review process adds little to the value of theoretical physics papers.

Theoretical Physics reviewing process



Wait for comments

Theoretical HEP

- Are theoretical physicists so different from their experimental colleagues ?
  - Experimentalists use the collaboration to review their papers and then submit them to servers (like the CERN server)
  - Theorists use the world-wide network of fellow workers as reviewers and use the LANL archives to publicise their work.

Accelerator Physics

- At CERN SL, PS, LHC and EST divisions publish papers on Accelerator Physics.
  - These go through a CERN internal refereeing process to get a ‘CERN number’
  - Very few journals for accelerator physics
  - Most papers (10:1) are not submitted to peer-reviewed journals but are presented at conferences and appear in the proceedings.
- Accelerator physicists are not big users of the LANL e-print archives.
  - Don’t have a preprint culture
  - probably doesn’t suit their way of working.

JHEP, the Journal of High Energy Physics

- We have recently seen the arrival of JHEP, the Journal of High Energy Physics, a fully electronic journal covering all branches of HEP.
- The JHEP refereeing procedure is based on the traditional system:
  - Electronic-only processes;
  - An editorial board consisting of distinguished senior physicists;
  - An editor receives the submitted paper, examines it, asks one or more referees for an opinion and then acts accordingly;
  - The confidentiality of both the submission and the identity of the referee are guaranteed;

Scientific Notes

- The increasing size of HEP collaborations has led to a new type of publication called a “Scientific Note”.
  - This was announced in the **CERN Courier Volume 39, Number 9**
  - These are short notes on results of analyses, detector development, simulations, etc.
  - Only authors directly involved in the work are credited
  - Made available to the collaboration during validation process (read-only)
  - Refereed internally inside the collaboration and final approval given by “spokesperson”
- The CERN Document Server offers support for the refereeing process of these notes (Thomas mentioned this yesterday).
  - In an electronic but traditional way

CERN Open Papers

- In an attempt to get CERN papers which were never given the the library we started the “CERN-OPEN” category on the CERN server.
  - Started in 2000
  - Electronic only submission
  - Validated by a physicist – not refeering
- We only get about 100 submissions per year !
  - The library submits papers it finds elsewhere to complete collection
  - This is about 10% of the ‘missing papers’
- So a free, non peer reviewed publishing effort hasn’t really worked.

Comments / Conclusions

- Peer review, if done well, can add value to papers
  - Not a unanimous opinion
- Experimental HEP does not see an advantage in open peer review
  - Their internal reviewing takes input from many scientists
- HEP is unsure of value added by traditional journals
  - Most of the ‘actors’ are physicists
- There is a danger of information overload
  - 4000 HEP papers are added to the CERN Document Server each month and this is increasing
  - If we don’t have good validation then we will see even more papers
    - The people who should be reading them will not bother
    - One physicist estimates than > 10 papers per week (in his discipline) is too much

Comments / Conclusions

- The jury is still out on how best to do peer review
  - Open v/s closed
- Theoretical physicists already depend on feedback rather than formal peer review
  - Would probably use an e-based peer review system. e.g. 2-level process
    - Comments on first draft open to author only
    - Once paper is ‘corrected’ comments become public domain
- Any generalized electronic peer review system (open or closed) must support the very different ways of working in the different branches of HEP