WID Handbook for
Intermediate Laboratory - Physics 2151W
Writing Physics Papers

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Publish or Perish - Presentation of Scientific Results

Intermediate Laboratory – Physics 2151W is focused on significantly improving the students' writing skills with respect to producing scientific papers, to do peer reviews, and presentations at the Physics Department Mini-Workshop.

Third Edition, 2013

OUTLINE

- Why are we Writing Papers?
- What Physics Journals are there?
- Structure of a Physics Article.
- Style of Technical Papers.
- Hints for Effective Writing.
- Submit and Fight.

Why are We Writing Papers?

- To communicate our original, interesting, and useful research.
- To let others know what we are working on (and that we are working at all.)
- To organize our thoughts.
- To formulate our research in a comprehensible way.
- To secure further funding.
- To further our careers.
- To make our publication lists look more impressive.
- To make our Citation Index very impressive.
- To have fun?
- Because we believe someone is going to *read* it!!!

What Physics Journals are there?

Hard Science Journals – Physical Review Series:

- Physical Review A
  http://pra.aps.org/
  Atomic, Molecular, and Optical physics.
- Physical Review B
  http://prb.aps.org/
  Condensed matter and Materials physics.
- Physical Review C
  http://prc.aps.org/
  Nuclear physics.
- Physical Review D
  http://prd.aps.org/
  Particles, Fields, Gravitation, and Cosmology.
- Physical Review E
  http://pre.aps.org/
  Stat, Non-Linear, & Soft Material Phys.
- Physical Review Letters
  http://prl.aps.org/
  Moving physics forward.
- Review of Modern Physics
  http://rmp.aps.org/
  Reviews in all areas.

*[Physical Review commenced publication in July **1893.** It was organized by Cornell University professor E. Nichols and helped by the new President of Cornell, J. G. Schurman. The journal was managed and edited at Cornell in upstate New York from **1893** to **1913** by Nichols, E. Merritt, and F. Bedell.]*

Applied Physics Series

- Journal of Applied Physics
  http://jap.aip.org
- Applied Physics Letters
  http://apl.aip.org

Hard Science Journals – European Physics Journal Series:

- EPJ A
  http://epja.edpsciences.org/
  Hadrons and Nuclei.

- EPJ B
  http://epjb.edpsciences.org/
  Condensed matter & Complex systems.

- EPJ C
  http://epjc.edpsciences.org/
  Particles and Fields.

- EPJ D
  http://epjd.edpsciences.org/
  Atomic, Molecular, Optical, & Plasma physics.

- EPJ E
  http://epje.edpsciences.org/
  Soft Matter.

- Europhysics Letters
  http://epljornal.edpsciences.org/
  Frontiers of physics.

- Physics Letters B
  http://www.elsevier.com/wps
  Nuclear physics and Particle physics.

ELSEVIER

*[From the time of its creation in **1845**, the Physical Society of Berlin (Physikalische Gesellschaft zu Berlin) published Fortschritte der Physik and Verhandlungen, but by **1919**, the Verhandlungen had become too voluminous, so a committee consisting of A.Einstein, E. Goldstein, Fr. Haber, E. Jahnke, K. Scheel and W. Westphal was formed.]*

Nature and Science

- Nature:
http://www.nature.com

- Science:
http://www.sciencemag.org

Soft Science Journals

- Physics Today:
http://www.physicstoday.org/
Official journal of APS, good review articles and research news.

- Physics World:
http://physicsworld.com/cws/home
IOP, good review articles.

- Scientific American:
http://www.sciam.com/
Popular science articles.

- American Journal of Physics:

http://scitation.aip.org/ajp/
Pedagogical physics research articles.

AAPT PHYSICS EDUCATION | AMERICAN JOURNAL of PHYSICS

Impact Factor

How much is your Article worth?

- Institute of Science Information (ISI)
  http://www.isiwebofknowledge.com/

The Institute for Science Information (ISI) is the publisher of the Science Citation Index (CI), science watch, current contents, and other databases of research information

ISI Impact Factors (IF) of selected Physics Journals - 2002

[Natural Sciences: There are 6,125 active journals including 145 high cited book series.]

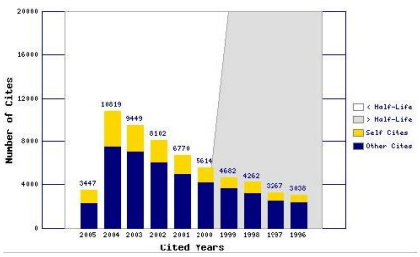
Average citation per article:

Nature	30.432	Appl Phys Lett	4.207
Science	28.956	Phys Rev B	3.327
Rev Mod Phys	23.672	Phys Rev A	2.986
Adv Phys	13.952	Phys Rev C	2.848
Phys Rep	12.645	Phys Rev E	2.397
Phys Rev Lett	7.523	J Appl Phys	2.281
Nucl Phys B	5.409	EPJ E	2.188
Phys Today	5.000	EPJ B	1.741
Phys Rev D	4.358		

Journal Citation Report – 2005

Journal Summary List: Nuclear Science & Technology; Nucl Phys; Particle & Fields.

Abbreviated Journal Title	ISSN	2005 Total Cites	Impact Factor	Immediacy Index	2005 Articles	Cited Half-life
EUR PHYS J A	1434-6001	2469	1.659	0.255	455	3.5
PHYS LETT B	0370-2693	55129	5.301	1.499	955	7.4
PHYS REV C	0556-2813	26370	3.610	0.689	852	6.0
PHYS REV D	1550-7998	82935	4.852	1.749	2247	5.2
PHYS REV LETT	0031-9007	250517	7.489	1.572	3694	6.6



Citations

How much is your article really worth?

http://www.isiwebofknowledge.com/

THOMSON REUTERS

ISI Web of Knowledge℠

http://inspirehep.net/

INSPIRE HEP

HEP Search: High-Energy Physics Literature Database

According to the SPIRES-HEP database, the HEP preprint database has over 600,000 high-energy physics related records since 1974 and just under 20,000 of these have more than 50 citations (4 %).

- Citation numbers and the Impact Factor of journals are often used to evaluate the quality and the importance of research.

- Both quantities IF and CI have some shortcomings, and people using these indicators should know when and when not to use them.

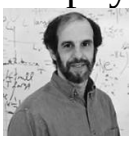
Rank	Country	1000+	500+	Total papers
1	USA	98	393	198007
2	Switzerland	18	59	43426
3	Russia	17	60	61366
4	UK	10	66	38789
5	Germany	10	39	69268
6	Italy	9	44	46813
7	France	7	47	37411
8	Canada	6	23	18673
9	Sweden	6	12	7132
10	Japan	4	33	42606
11	Poland	3	13	12371
12	Denmark	2	12	5429
13	Belgium	2	6	5544
14	Korea	2	4	5250
15	Chile	2	4	1520
16	Australia	2	3	5463
17	Netherlands	1	16	9176
18	Israel	1	5	8199
19	Taiwan	1	4	3225
20	Spain	1	3	12633
21	Portugal	1	2	2861
22	India	1	1	13783
23	Brazil	1	1	10343
24	Mexico	1	1	3927
25	Colombia	1	1	591

[Terry Mart, Symmetry, 3 (2006)]

Preprint Archive

Free, Fast, Referee free, Money free

arXiv has become the most widely used preprint server among academics in the physical sciences.



http://arxiv.org/ arXiv:1108.2700

Cornell University Library

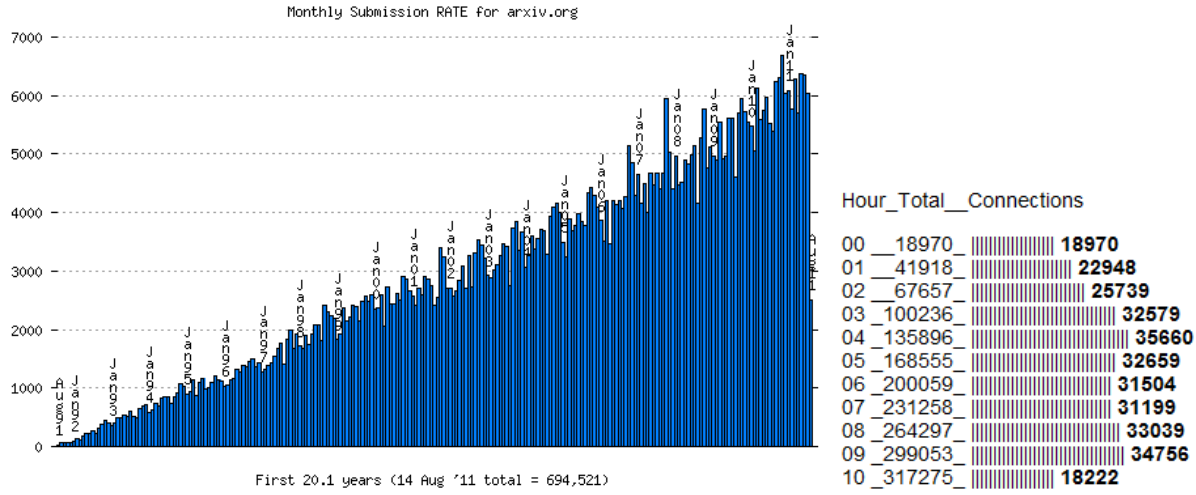
arXiv.org

Open access to 694,518 e-prints in Physics, Mathematics, Computer Science, Quantitative Biology, Quantitative Finance and Statistics

[It received more than 60,000 new submissions in 2009, has about 400,000 registered users and provides 2.5 million articles download per month.]

arXiv web server usage for 14 Aug 2011 (arxiv.org site only)

arXiv monthly submission rate statistics



Total number of connections = 317275 (+3210 local & administrative connections)

Structure of a Physics Article

Short Letters (PRL, APL, Rapid Communications …)

[1 – 4 pages]

- Title.
- Abstract.
- Homogeneous body includes introduction and acknowledgments.
- References.
- 0-4 figures/tables.
- At most paragraph titles.

Regular Articles

[4 – 500+ pages]

- Title.
- Abstract.
- Introduction.
- Body sections.
- Conclusions/Summary.
- Acknowledgments.
- References.
- Appendices.

Title

Informative, Catchy, and Concise.

Semicolons?

Why not, if it helps, though some consider them bad taste.

Abstract

Concise, Direct, Informative.

Passive or Active voice? – I prefer active, though in longer abstracts an occasional active assertion may be enlivening.

``We have measured ...'' or ``We have calculated ...'' − What you should not do is use both in the same abstract.

- Abstracts are now more important than ever due to the large and increasing number of articles. One cannot read all the papers in each issue of PRL, not even in ones own field. Abstracts should state major findings, even some specifics (numbers, formulas showing basic trends.)

- Please keep the number of words under **250**.

- Abstract has to have a punch-line.

After reading the abstract professionals not acquainted with your work should understand what your experiment goal was and the concept/principle you used to achieve this goal.

Example of Abstract

VOLUME 33, NUMBER 23 PHYSICAL REVIEW LETTERS 2 DECEMBER 1974

Discovery of a Narrow Resonance in e^+e^- Annihilation*

J.-E. Augustin,† A. M. Boyarski, M. Breidenbach, F. Bulos, J. T. Dakin, G. J. Feldman, G. E. Fischer, D. Fryberger, G. Hanson, B. Jean-Marie,† R. R. Larsen, V. Lüth, H. L. Lynch, D. Lyon, C. C. Morehouse, J. M. Paterson, M. L. Perl, B. Richter, P. Rapidis, R. F. Schwitters, W. M. Tanenbaum, and F. Vannucci‡

Stanford Linear Accelerator Center, Stanford University, Stanford, California 94305

and

G. S. Abrams, D. Briggs, W. Chinowsky, C. E. Friedberg, G. Goldhaber, R. J. Hollebeek, J. A. Kadyk, B. Lulu, F. Pierre,§ G. H. Trilling, J. S. Whitaker, J. Wiss, and J. E. Zipse

Lawrence Berkeley Laboratory and Department of Physics, University of California, Berkeley, California 94720

(Received 13 November 1974)

We have observed a very sharp peak in the cross section for $e^+e^- \to$ hadrons, e^+e^-, and possibly $\mu^+\mu^-$ at a center-of-mass energy of 3.105 ± 0.003 GeV. The upper limit to the full width at half-maximum is 1.3 MeV.

[*Prof Burton Richter is a 1976 Nobel Laureate in Physics for their pioneering work in the discovery of a new kind of heavy elementary particle, J/ψ.*]

Introduction

- Give the first impression about the paper.
- Place the work into broader context.
- Relate to other relevant research.
- Say why is the work important, in plain language.
- State major achievement/limitations.
- State techniques/methods.
- Describe organization of the paper.

Example of Introduction

VOLUME 35, NUMBER 22 PHYSICAL REVIEW LETTERS 1 DECEMBER 1975

Evidence for Anomalous Lepton Production in e^+-e^- Annihilation*

M. L. Perl, G. S. Abrams, A. M. Boyarski, M. Breidenbach, D. D. Briggs, F. Bulos, W. Chinowsky, J. T. Dakin,† G. J. Feldman, C. E. Friedberg, D. Fryberger, G. Goldhaber, G. Hanson, F. B. Heile, B. Jean-Marie, J. A. Kadyk, R. R. Larsen, A. M. Litke, D. Lüke,‡ B. A. Lulu, V. Lüth, D. Lyon, C. C. Morehouse, J. M. Paterson, F. M. Pierre,§ T. P. Pun, P. A. Rapidis, B. Richter, B. Sadoulet, R. F. Schwitters, W. Tanenbaum, G. H. Trilling, F. Vannucci,‖ J. S. Whitaker, F. C. Winkelmann, and J. E. Wiss

Lawrence Berkeley Laboratory and Department of Physics, University of California, Berkeley, California 94720, and Stanford Linear Accelerator Center, Stanford University, Stanford, California 94305

(Received 18 August 1975)

We have found events of the form $e^+ + e^- \rightarrow e^\pm + \mu^\mp$ + missing energy, in which no other charged particles or photons are detected. Most of these events are detected at or above a center-of-mass energy of 4 GeV. The missing-energy and missing-momentum spectra require that at least two additional particles be produced in each event. We have no conventional explanation for these events.

We have found 64 events of the form

$$e^+ + e^- \rightarrow e^\pm + \mu^\mp + \geq 2 \text{ undetected particles} \quad (1)$$

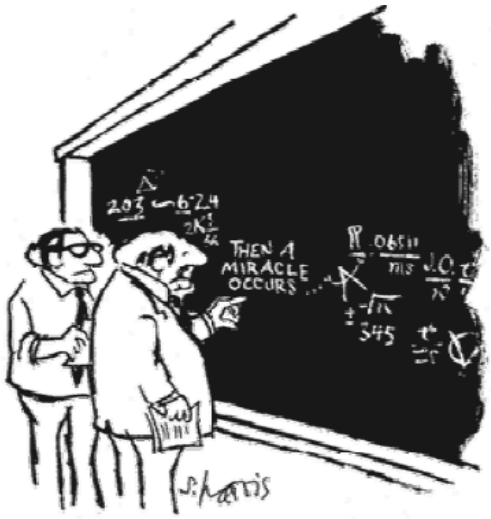
for which we have no conventional explanation. The undetected particles are charged particles or photons which escape the 2.6π sr solid angle of the detector, or particles very difficult to detect such as neutrons, K_L^0 mesons, or neutrinos. Most of these events are observed at center-of-mass energies at, or above, 4 GeV. These events were found using the Stanford Linear Accelerator Center–Lawrence Berkeley Laboratory (SLAC-LBL) magnetic detector at the SLAC colliding-beams facility SPEAR.

Events corresponding to (1) are the signature for new types of particles or interactions. For example, pair production of heavy charged leptons[1-4] having the decay modes $l^- \rightarrow \nu_l + e^- + \bar{\nu}_e$, $l^+ \rightarrow \bar{\nu}_l + e^+ + \nu_e$, $l^- \rightarrow \nu_l + \mu^- + \bar{\nu}_\mu$, and $l^+ \rightarrow \bar{\nu}_l + \mu^+ + \nu_\mu$ would appear as such events. Another possibility is the pair production of charged bosons with decays $B^- \rightarrow e^- + \bar{\nu}_e$, $B^+ \rightarrow e^+ + \nu_e$, $B^- \rightarrow \mu^- + \bar{\nu}_\mu$, and $B^+ \rightarrow \mu^+ + \nu_\mu$. Charmed-quark theories[5,6] predict such bosons. Intermediate vector bosons which mediate the weak interactions would have similar decay modes, but the mass of such particles (if they exist at all) is probably too large[7] for the energies of this experiment.

Body of the Paper

Describe your findings in an organized, structured, and logical way:

- Think about the organization ahead of actual writing.
- Create informative headings helping easy orientation.



"I THINK YOU SHOULD BE MORE EXPLICIT HERE IN STEP TWO."

Conclusions

- Give your article closure.
- Summary of major results.
- Prospects for future extensions.
- Possible applications, relevance to other works, fields.

Conclusions including Example of References

VOLUME 35, NUMBER 22 PHYSICAL REVIEW LETTERS 1 DECEMBER 1975

tors are largest for low $\sqrt{s}$. Thus, the apparent threshold may not be real.

We conclude that the signature e-μ events cannot be explained either by the production and decay of any presently known particles or as coming from any of the well-understood interactions which can conventionally lead to an e and a μ in the final state. A possible explanation for these events is the production and decay of a pair of new particles, each having a mass in the range of 1.6 to 2.0 GeV/c^2.

*Work supported by the U. S. Energy Research and Development Administration.

†Present address: Department of Physics and Astronomy, University of Massachusetts, Amherst, Mass. 01002.

‡Fellow of Deutsche Forschungsgemeinschaft.

§Centre d'Etudes Nucléaires de Saclay, Saclay, France.

‖Institut de Physique Nucléaire, Orsay, France.

[1]M. L. Perl and P. A. Rapidis, SLAC Report No. SLAC-PUB-1496, 1974 (unpublished).

[2]J. D. Bjorken and C. H. Llewellyn Smith, Phys. Rev. D 7, 887 (1973).

[3]Y. S. Tsai, Phys. Rev. D 4, 2821 (1971).

[4]M. A. B. Beg and A. Sirlin, Annu. Rev. Nucl. Sci. 24, 379 (1974).

[5]M. K. Gaillard, B. W. Lee, and J. L. Rosner, Rev. Mod. Phys. 47, 277 (1975).

[6]M. B. Einhorn and C. Quigg, Phys. Rev. D (to be published).

[7]B. C. Barish *et al.*, Phys. Rev. Lett. 31, 180 (1973).

[8]J.-E. Augustin *et al.*, Phys. Rev. Lett. 34, 233 (1975); G. J. Feldman and M. L. Perl, Phys. Rep. 19C, 233 (1975).

[9]See M. L. Perl, in Proceedings of the Canadian Institute of Particle Physics Summer School, Montreal, Quebec, Canada, 16–21 June 1975 (to be published).

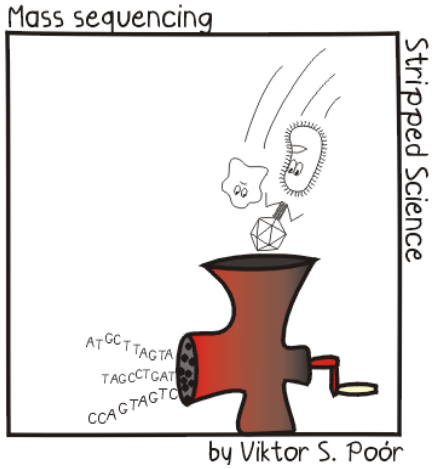
[10]V. M. Budnev *et al.*, Phys. Rep. 15C, 182 (1975); H. Terazawa, Rev. Mod. Phys. 45, 615 (1973).

[11]These contamination calculations do not depend upon the source of the e or μ; anomalous sources lead to overestimates of the contamination.

[12]Using *only* events in column 1 of Table I we find at 4.8 GeV $P_{h\to e} = 0.27 \pm 0.10$, $P_{h\to\mu} = 0.23 \pm 0.09$, and a total e-μ background of 7.9 ± 3.2 events. The same method yields a total e-μ background of 30 ± 6 events summed over all energies. This method of background calculation (Ref. 9) allows the hadron background in the two-prong, zero-photon events to be different from that in other types of events.

[13]Our studies of the two-prong and multiprong events show that there is *no* correlation between the misidentification or decay probabilities; hence the background is calculated using independent probabilities.

[14]Of the 24 events, thirteen are $e^+ + \mu^-$ and eleven are $e^- + \mu^+$



How Many Authors might a Modern Paper Have?

Alignment of the ALICE Inner Tracking System with cosmic-ray tracks

ALICE collaboration

ABSTRACT: ALICE (A Large Ion Collider Experiment) is the LHC (Large Hadron Collider) experiment devoted to investigating the strongly interacting matter created in nucleus-nucleus collisions at the LHC energies. The ALICE ITS, Inner Tracking System, consists of six cylindrical layers of silicon detectors with three different technologies; in the outward direction: two layers of pixel detectors, two layers each of drift, and strip detectors. The number of parameters to be determined in the spatial alignment of the 2198 sensor modules of the ITS is about 13,000. The target alignment precision is well below 10 μm in some cases (pixels). The sources of alignment information include survey measurements, and the reconstructed tracks from cosmic rays and from proton–proton collisions. The main track-based alignment method uses the Millepede global approach. An iterative local method was developed and used as well. We present the results obtained for the ITS alignment using about 10^5 charged tracks from cosmic rays that have been collected during summer 2008, with the ALICE solenoidal magnet switched off.

KEYWORDS: Particle tracking detectors (Solid-state detectors); Detector alignment and calibration methods.

From 113 Institutes/Laboratories

Style of Technical papers

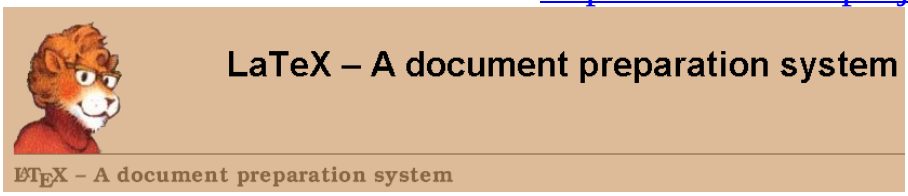
Guidelines explained in detail in:

American Institute of Physics (AIP) Style Manual
www.aip.org/pubservs/style/4thed/AIP_Style_4thed.pdf

Tools: LaTeX

Text, Equations, Figures, Tables, References

LaTeX : http://www.latex-project.org/



REVTeX 4

To compile Phys. Rev. Style documents: http://authors.aps.org/revtex4/

TeX archive network: http://www.ctan.org/ctan

Hints for Effective Writing

Something about Style

Disclaimer

- I am not a native English speaker and I am not a writing professional. Everything that follows should be taken as my best attempt to teach my students intricacies and idiosyncrasies of physics writing, based on my own experiences and on reading inspiring literature. I claim no responsibility to the damage inflicted on students by following my advice too closely and producing unintelligible and grammar offensive research articles. Beware of my grammar hints. I am especially offensive to the articles (``the", ``a", ``an", and the worst of all, none, ``…")

- I feel absolved by being a Slavic language (read: article-free) native speaker.

Hint 1

Pick a published paper you like and try to emulate its structure and style.

Learn from eminent physics writers.

Some of my favorite physics writings are:

- S. Weinberg: *Relativity and Cosmology*
- R. Feynman, R. Leighton, and M. Sands: *Feynman Lectures in Physics*
- L. Landau and E. Lifschitz: *Course in Theoretical Physics* (*)



(*) I would not recommend emulating the style of L&L in research papers, unless you can emulate their physics.

Hint 2

Understand what you write, be clear:

- Distance yourself from the writing to see it unbiased.
- Logic must flow.
- Ask a colleague if in doubt that writing may be incomprehensible.

Useful point: Do not write ``The energy increases with pressure", but ``The energy increases with increasing pressure", to be clear, since one can often mean the opposite (``At low fields the rate decreases" can mean that the rate increases with decreasing fields, but one never knows.)

Hint 3

Structuring into ideas = Structuring into paragraphs.

- Place clue sentences in the beginning.
- Read the paragraph and rewrite it if the logic does not flow.

Hint 4

Write in Active voice.

``I show that the process occurs." Or ``These results show that …"
(NO: It is shown by these results that …)

- What you should not do is use both in the same abstract.
- Be concise, precise, and direct.
- Stay focused (not shift your point of view.)
- Do not put statements in the negative form.

Hint 5

Be consistent.

- If there is an allowed ambiguity, stick to your choice throughout the paper:

For example, ``We take five configurations for the microstate. Each microstate is defined by …"
Either pick microstate or configuration, some may get confused.

- Similarly with grammar:

For example, if you describe an experiment in the past sense, do not switch randomly to the present one.

Hint 6

No offense.

Avoid if possible words like:

- Clearly.
- Obviously.
- As is well known.
- Of course.
- Last but not least, avoid cliches like the plague; seek viable alternatives.

Hint 7

Read the guidelines:

- Early in your professional life read the guidelines for authors to the journal you write for.

Adhere to the most relevant points in future writings.

Hint 8

Do not overdo:

- Footnotes.
- In-line equations.
- References.
- Figures.
- Latin (Greek and so on) phrases.
- Acronyms.

Hint 9

Referring:

- Include only equations, figures, tables, and references that you refer to
- Carefully define every term in equations.
- Define all the lines and symbols in figures.
- Each figure and table comes with a caption.
- Number all equations (if needed.)
- All nontrivial statements should be explained or referenced.

Hint 10

Revise **5-10** times:

- Spell check.
- Grammar check (including backward reading.)
- Check for flow.
- Shorten.
- Give the paper to a colleague for opinion.
- Stop revising after a revision eliminates a previous revision, or if you are revising **10^{th}** time.

There is a little chance you will improve anything.

Final Hint

Do not put too much emphasis on writing.

It is a tool to communicate your research, no less and no more.

- An average paper is cited perhaps 4 times, and read perhaps 7 (4 plus 2 referees plus 1 random reader) times.

- You need to balance your time.

I know of terribly written articles that are cited 500 and more times. In the end, it is the idea that you present, and not the form of the presentation, that will be remembered.

Single Authors:

I or We.

- I prefer ``I" when addressing work done by myself:

I show that

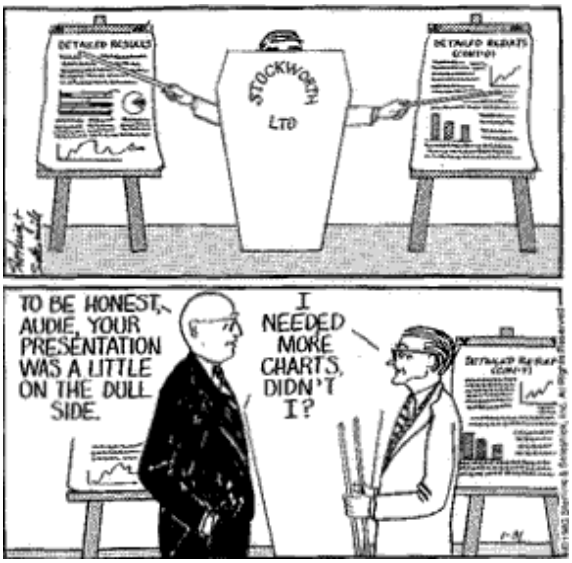
- Using ``we" is more formal and authoritative; it diffuses responsibility

There can still be ``we", if inviting the reader to join the discussion:

``If we substitute A for B" or ``If one substitutes A for B".

Hints for Effective Writing à la Barbara Goss Levi *)

[*Barbara Goss Levi is a senior editor of Physics Today, and a member of the Forum on Education's Executive Committee. This article originally appeared in the fall **1997** issue of the Forum on Physics and Society newsletter.*]



*) http://www.aps.org/publications/apsnews/199806/rules.cfm

1. Practice writing short summaries of longer articles
   (get the message out.)

2. Combine writing with inspiring reading
   (emulate the style of your favorite writing.)

3. Get rid of superfluous words
   (there is …, the fact that …)

4. Rewrite if it is not clear.

5. Define your terms.

6. Good writing is clear thinking.

None of these rules are new. They are like the simple rule to tennis players: ``Keep your eye on the ball". The players all know the rule, but the challenge is to consistently follow it. And having completed this little piece, I wonder which of the above rules I have violated in writing it.

Berman Rules-for-Better-Writing

1. Verbs HAS to agree with their subjects.
2. Prepositions are not words to end sentences with.
3. And don't start a sentence with a conjunction.
4. It is wrong to ever split an infinitive.
5. Avoid cliches like a plague (They're old hat).
6. Comparisons are as bad as clichés.
7. Also, always avoid annoying alliteration.
8. Be more or less specific.
9. Parenthetical remarks (however relevant) are (usually) unnecessary.
10. Also to, never, ever use repetitive redundancies.
11. No sentence fragments.
12. Foreign words and phrases are not apropos.
13. Do not be redundant; do not use more words than necessary; it's highly superfluous.
14. One should NEVER generalize.
15. Don't use no double negatives.
16. One-word sentences? Eliminate.
17. Analogies in writing are like feathers on a snake.
18. The passive voice is to be ignored.
19. Never use a big word when a diminutive one would suffice.
20. Use words correctly, irregardless of how others use them.
21. Eliminate quotation. As Ralf Waldo Emerson said, "I hate quotations. Tell me what you know".
22. If you've heard it ones, you've heard it a thousand times: Resist hyperbole; not one writer in a million can use it correctly.

Barry L. Berman

Submit & Fight

Submission Letter

Dear Editor,

We submit a manuscript entitled ``Falling cats with jelly on the back: stable equilibrium versus instinct", by Schroedinger and Einstein, for publication in *Physical Review Letters*. The manuscript considers the important problem of cats with a jelly spread on their back. The cats are left to fall free from a height of at least 50 cm, and observed in their fall. We have discovered that cats do not fall. Instead, they hover indefinitely. Our conclusions have far reaching consequences for both physics and biology. We are now pondering about what happens to the cats when they are entangled.

The importance of our work as well as far reaching consequences of our discovery justify our manuscript to be considered for publication in *Physical Review Letters*. Below we suggest physicists who should be qualified to referee our work.

Sincerely,
E. Schroedinger
A. Einstein

Suggested referees: N. Bohr (Copenhagen), L. Boltzman (Graz),
L. Landau (Moscow)

Referee Reports

Re: Falling cats with jelly …
By: Schroedinger and Einstein

Dear Dr. Schroedinger:

The above manuscript has been reviewed by our referee(s). On the basis of the enclosed critique, we judge that the work does not meet the special criteria of importance and broad interest required for *Physical Review Letters*. We also wish to emphasize that we take strong stance on the animal rights issue and we do not endorse experimenting with live animals, with or without jelly on their back.

Yours sincerely,
E. Rutherford
Senior Editor
Encl. Referee reports

Referee A

This paper presents an experimental treatment of combined effects of mechanical rotation and animal instincts. The treatment is sound, but cruel. I question the conclusions of the manuscript on the basis that the authors used only 1 cat which must have felt depressed about being thrown repeatedly from the Physics Department windows. As is known from the work of Darwin, depressed cats tend to hover in the air. The authors have failed to separate the effects of depression from those of mechanical rotation and biological instincts. Therefore, I do not recommend the paper for publication in Physical Review Letters in the present form, although the subject itself is of great importance.

Referee B

The group of Dr. Schroedinger publishes reliable and interesting results (though I have some doubts about Dr. Einstein who tends to be off at time). The paper is well written, the results clearly stated. The subject is definitely of broad interest, as I have myself pondered about such things. The only question I have is whether the work is suitable for Physical Review Letters, or should be published in the ``American Journal of Falling Cats''? I opt for the latter

Resubmission Letter

Dear Editor,

We resubmit our manuscript entitled ``Falling cats with jelly on the back: stable equilibrium versus instinct", by Schroedinger and Einstein, for publication in *Physical Review Letters*. We consider the criticism of the referees well meant, and in fact supporting publication in your journal. Referee A says ``The treatment is sound …" and ``… is of great importance". Referee B claims that the paper is well written and of broad interest. We address the few minor critical points in the enclosed response to the referees. Since we have addressed ALL the referee comments, and since the comments themselves can be interpreted as positive, we strongly request that you publish our manuscript without further delay.

Sincerely,
E. Schroedinger
A. Einstein

Response to the Referees

Response to referee A: We thank the referee for his or her thoughtful comments and for careful reading our manuscript. We were not aware of the important research of Darwin on falling cats. Taking into consideration that our cat could have indeed been depressed by both falling down so often and having jelly on the back, and so not wanting to really fall down, we have put the cat on an antidepressant (Whiskas Prozac) and let it fall several times again. We are happy to report that our original results stay unchanged. Unfortunately, the poor cat has died. Probably from an overdose of Prozac.

Response to referee B: We appreciate the referee's well thought comments and for suggesting an alternative journal for our manuscript. We have looked at several recent issues of AJFC to see if indeed this would be the appropriate place for our cat. Unfortunately, AJFC seems to publish only very technical papers on the subject, with little emphasis on the physics involved. We strongly believe that PRL is the most suitable journal for publishing our work.

Acceptance (rejection) Letter

Re: Falling cats with jelly …
By: Schroedinger and Einstein

Dear Dr. Schroedinger:

We are pleased to inform you that the above manuscript has been accepted for publication. You are requested to make a payment of $1000 toward the cost of disseminating your research results.

Yours sincerely,
E. Rutherford
Senior Editor

Reading about Physics Writing

• M. Alley, *The craft of scientific writing*, 3rd Edition (Springer NY, 1996)

• B. Goss Levi, Some simple rules of writing, http://www.aps.org/publications/apsnews/199806/rules.cfm

• D. Mermin, *What's wrong with this prose?* Physics Today, May 1989, p. 9

• D. Mermin, *What's wrong with this equations?* Physics Today, Oct. 1989, p. 9

• D. Mermin, *Writing physics*, http://www.lassp.cornell.edu/~cew2/KnightLecture.html

• A. Waldron, P. Judd, and V. Miller, *Physical Review stile and notation guide*, http://publish.aps.org/STYLE

• H.F. Ebel, C. Bliefert, and W.E. Russey, *The art of scientific writing* (VCH NY, 1987)