Physical Review Letters and the Scientific Publishing Triad: Authors, Referees, and Editors

Brant M. Johnson

Author   -- University of Texas at Austin (1972-75),
Brookhaven National Laboratory (since 1975), and
PHENIX Collaboration Corresponding Author (since 2001 –
nuclear and particle physics: relativistic heavy ions and spin physics)

*Referee --   Brookhaven National Laboratory (since 1980)*

Editor – American Physical Society, Associate Editor for
Physical Review Letters (1987 -…; accel. & beam physics 5/2013 …) ,
Physical Review E (1993 – plasma physics), and
Phys. Rev. ST Accel. and Beams (1998 -- plasma/beams borderline)

December 5, 2014

2014 Zimanyi School – Brant M. Johnson – Physical Review Letters
and the Scientific Publishing Triad: Authors, Referees, and Editors

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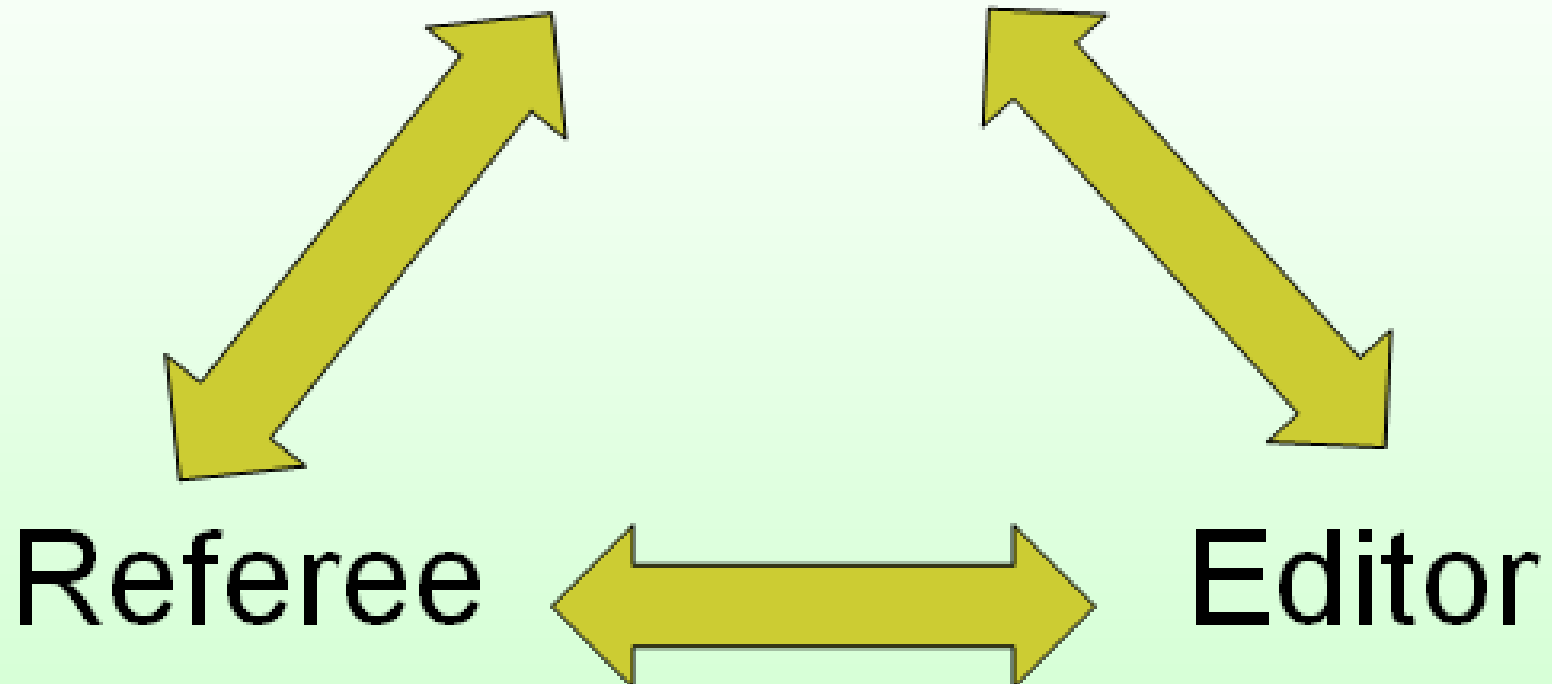
Author's view of the peer-review process
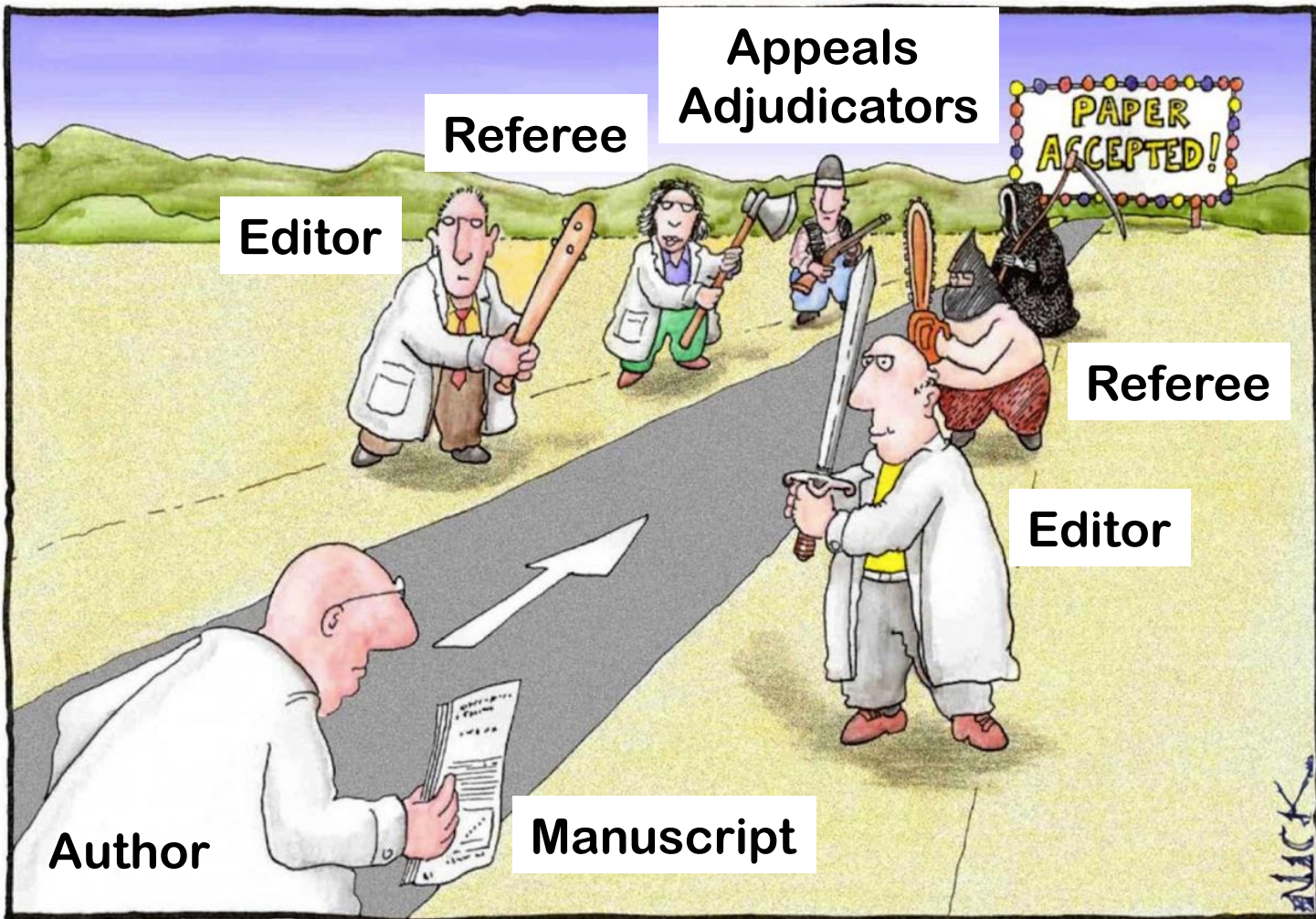
Most scientists regarded the new streamlined peer-review process as "quite an improvement."

Physics Journals *Before* 1893

- Europe
  - Annalen der Physik (Germany, 1790)
  - Comptes Rendu (France, 1835)
  - Nature (UK, 1869)
  - Il Nuovo Cimento (Italy, 1855)
  - Philosophical Magazine (UK, 1798)
  - Phil. Trans. of the Royal Society (UK, 1665, 1887)
    ➔ Proceedings of the Royal Society (UK, 1800)
- USA
  - American Journal of Science (1818)   *Geology, Mineralogy, Fossils,...(+Physics)...*
  - Journal of the Franklin Institute (1826)
  - Transactions of the Connecticut Academy (1873)

The Beginnings of the Physical Review:
## A New Physics Journal in The "New World"

In the 1890s, ~200 physicists in the U.S. Because emphasis had been on practical science, a need was identified for a "local" journal devoted solely to physics.
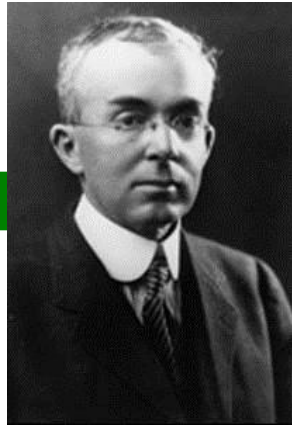
- ➢ **Nurture the fledgling physics community**
- ➢ **Encourage "pure" science**
- ➢ **Enhance the immediacy of communication**

- **1893: Physical Review Series I**
- **1899: American Physical Society (APS) founded**
- **1913: APS takes over Physical Review (Series II)**
- **1926: Physical Review moved to Minnesota**
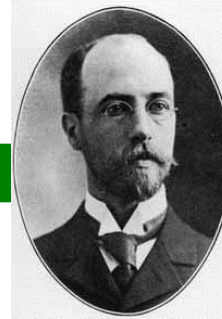
Cornell – U of Minnesota – BNL
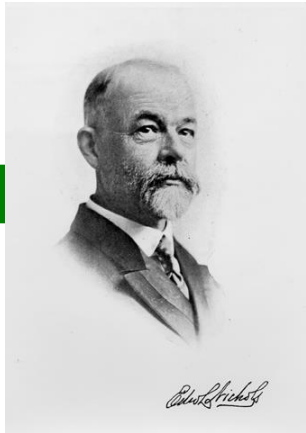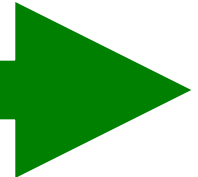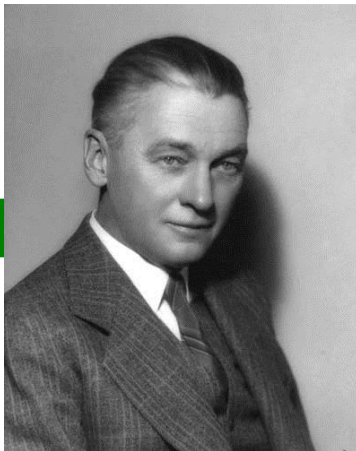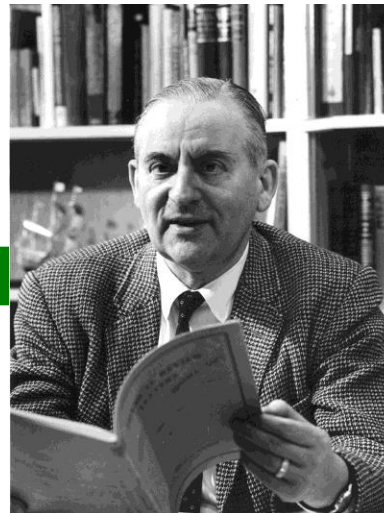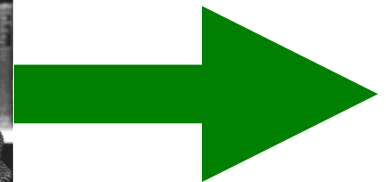
Nichols   (1893)   Merritt

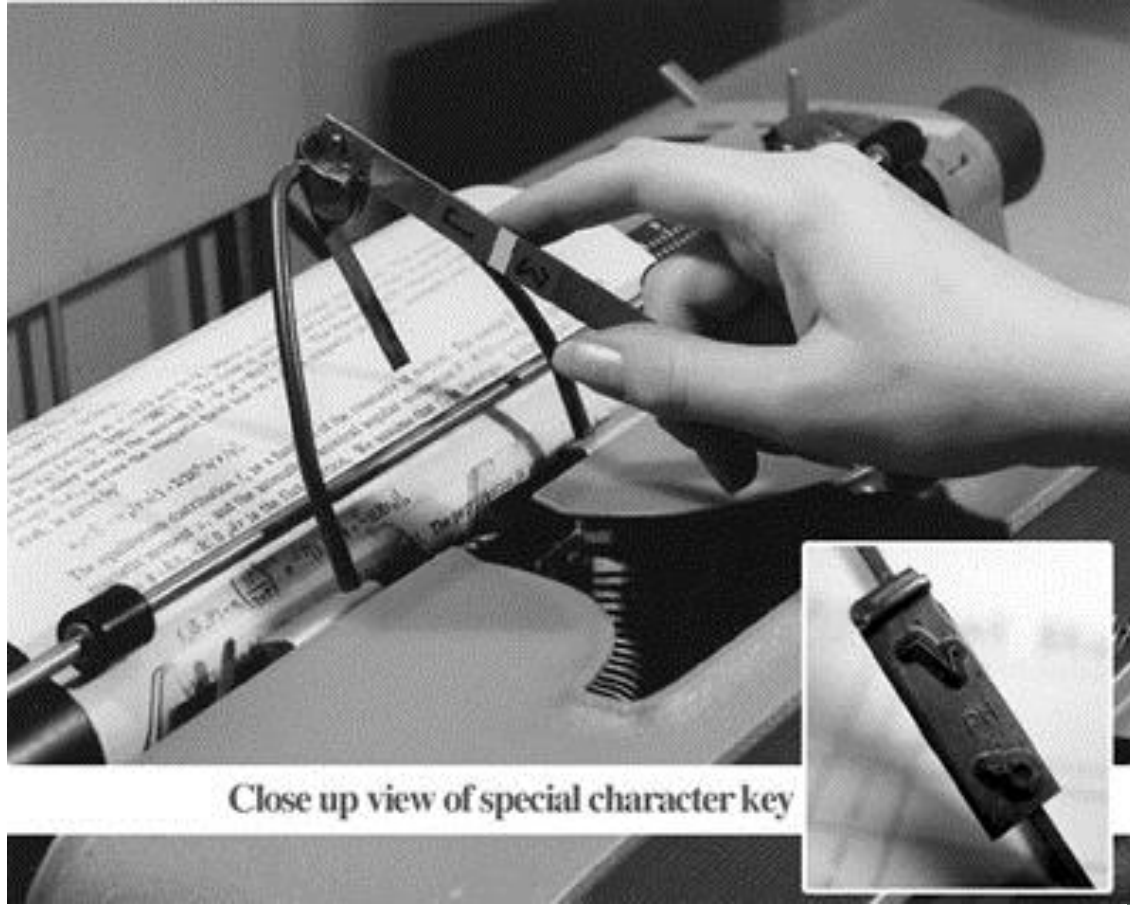Bedell (1913)

Fulcher (1923)

1929

Phys. Rev.

Tate (1926)

Goudsmit (1951)

First PRL Issue, July 1, 1958

Close up view of special character key
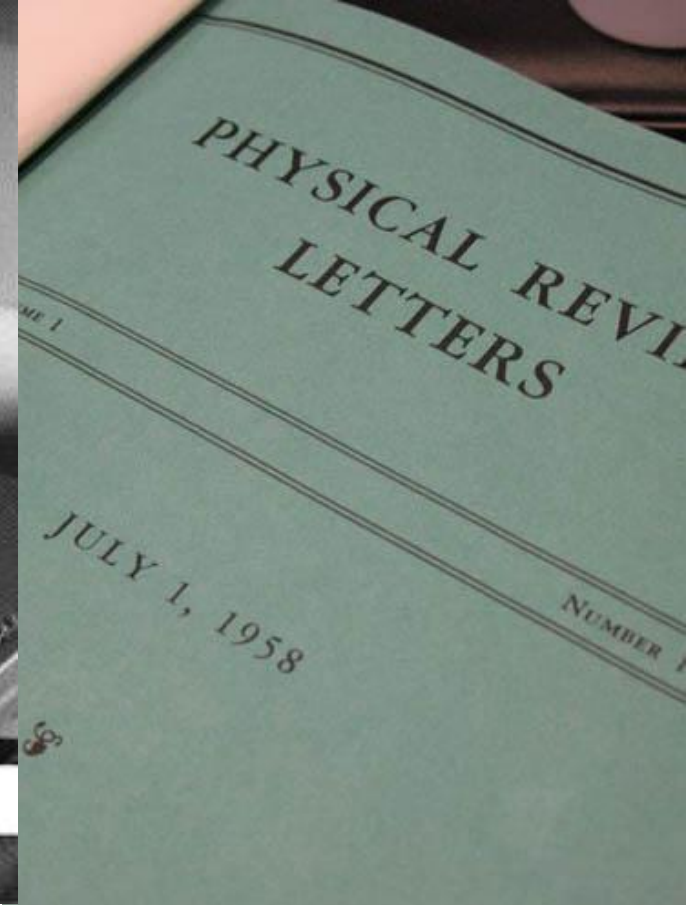
Typewriter composition (!)

PR and PRL (Chief) Editors
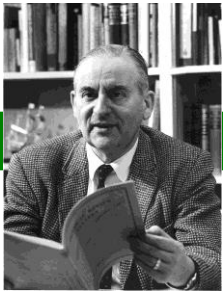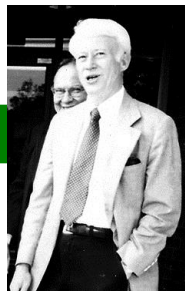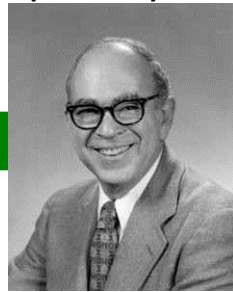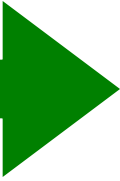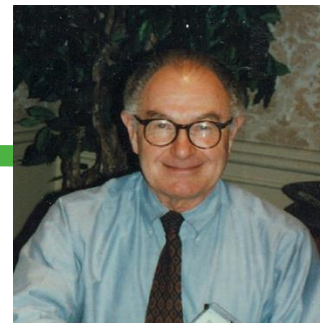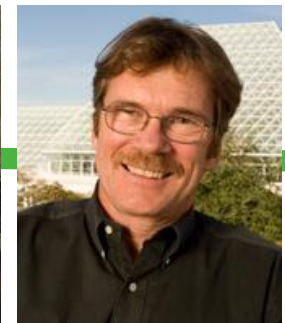
The Physical Review has evolved and split into a total of 11 journals that are now the premier portfolio of <u>physics</u> journals in the world.

Brant Johnson -- Associate Editor

RMP

Since 1987

PRI

Since 1993

PRE

PRA

1893

1958
PRL

1929
RMP

Physical Review

PRB

1913
APS takes over Physical Review

1970
PR splits into ABCD

PRC

PRD

Since 1998

Electronic Only

Open Access {
1998 **PRST-AB**
2005 PRST-PER
2008 Physics
2011 PRX
2014 PR Applied
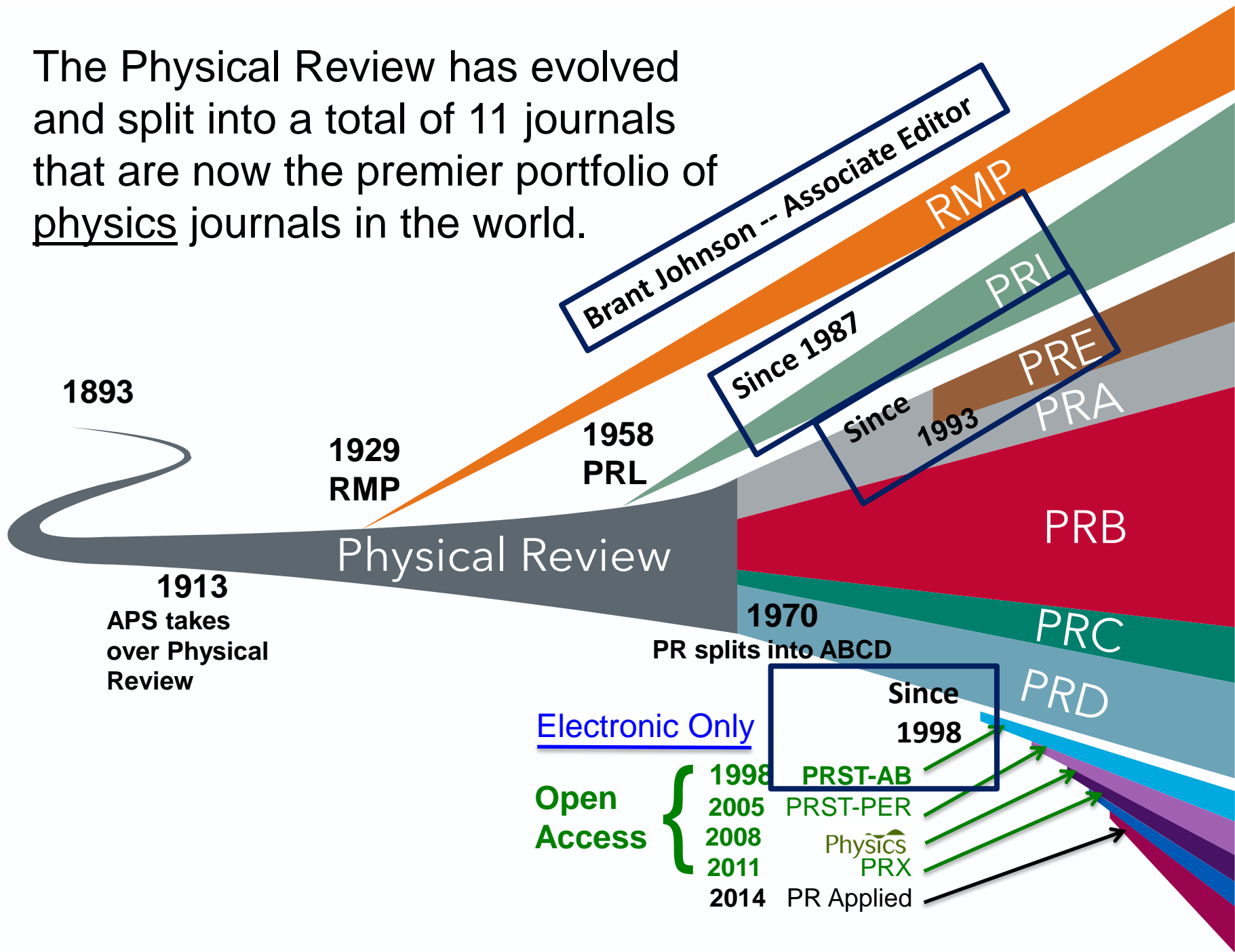
PHYSICAL REVIEW LETTERS
moving physics forward

Greetings from the 23 PRL Editors

4 PRL Editors

Lead Editor
Pierre Meystre

Donavan Hall

Saad Hebboul

Yonko Millev

Jane Throwe

Daniel Ucko
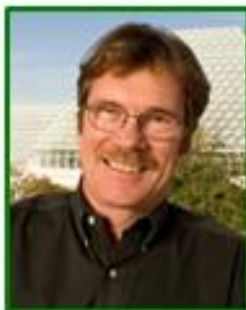
5 Senior Assistant Editors

Abhishek Agarwal

7 Assistant Editors

Roccio Cortes

Serena Dalena

Sonja Grondalski

Katherine Thomas

Stojan Rebic

Managing Editor
Reinhardt B. Schuhmann

Total of 22 PRL handling editors

Kevin Dusling

Editors
Robert Garisto

Sami Mitra

2 Associate Editors

Brant Johnson & Mu Wang

2 Consulting Editors

George Basbas & Stanley G. Brown

3 Adjunct Associate Editors

Deniz van Heijnsbergen

Stephan Grill   Frank Narducci

PRL editor for the field of relativistic ion-ion collisions

PRL Assistant Editor: Kevin Dusling

Kevin received his Ph.D. at Stony Brook University in 2008. He came to PRL in 2013 following postdoctoral research positions at North Carolina State University and Brookhaven National Laboratory. His research interests lie in high energy QCD and the phenomenology of ultrarelativistic heavy-ion collisions. He handles papers on mainly nuclear physics and cold atomic gases.

Meystre Plans to Maintain and Strengthen PRL

Editorial: Meystre Presents Plans to Maintain and Strengthen PRL as the Premier Physics Journal

As of July 1, I have the honor and the pleasure to serve as the Lead Editor of *Physical Review Letters*, succeeding Jack Sandweiss, who carried out that task for a remarkable 25 years. Let me take this opportunity to thank Jack for his extraordinary service to PRL and to our community.

Physical Review Letters is the premier Letter journal that broadly covers the full spectrum of current physics research. It is community driven and has not-for-profit status, and thus aims to provide high-profile publication of important results in all areas of physics. To maintain this mission, a few years ago PRL reinvigorated its standards for publication. A Letter should do at least one of the following: (i) substantially advance a particular field; (ii) open a significant new area of research; (iii) solve a critical outstanding problem, or make a significant step toward solving such a problem; or (iv) be of great general interest, based, for example, on scientific aesthetics.

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i. Substantially advance a particular field
ii. Open a significant new area of research
iii. Solve a critical outstanding problem, or make a significant step toward solving such a problem
iv. Be of great general interest, based, for example, on scientific aesthetics.

Rigorously enforcing PRL acceptance criteria

Editorial: Review Changes

In a recent editorial, we discussed the need to enforce the acceptance criteria of *Physical Review Letters* more rigorously, and our intention to engage in an ongoing conversation with the physics community to determine the best way forward.

Recently a committee of senior and early career scientists from all major areas of physics spent two days at the Ridge Editorial Offices for in-depth discussions about the role and evolution of PRL. They provided us with a series of recommendations for all aspects of the journal. Most importantly, they endorsed the main point of our recent editorial. The committee affirmed that the present situation, with continued growth in both submissions and published Letters, is unsustainable. In particular, the committee indicated that the number of PRL submissions that undergo the full review process must decrease.

In the coming weeks we will respond with some important changes in the way papers are submitted and reviewed.

- Enhance outreach efforts, visits to universities and research labs
  - Enforce acceptance criteria.
  - Increase in the number of Rejection Without Ext. Review
  - Stronger involvement of the DAEs in early stages of review
- Enhance the electronic features of the journal

PRL Rejection Without External Review (RWER) --- hard/soft

Hard

RWER

Soft RWER

We have considered your manuscript and conclude that it is not suited for Physical Review Letters.

We make no judgment on the correctness or technical aspects of your work. However, from our understanding of the paper's physics results, context, and motivation, we conclude that your paper does not meet the Physical Review Letters criteria of impact, innovation, and interest. Our criteria require a clear justification for consideration of the paper by PRL, rather than by a specialized journal. Your work appears better suited for submittal to the latter. [Please see our recent editorial http://journals.aps.org/prl/edannounce/PhysRevLett.111.180001 (2013).]

In view of our assessment, we are not sending your manuscript out for review.

We might consider a revised version of your paper, but only if it makes a transparent and compelling case for publication in PRL, as opposed to a more specialized journal. If a version arrives that makes this case well, we may decide that anonymous review is warranted. If we continue to find the manuscript unsuitable for review, possibly following input from a Divisional Associate Editor, we will inform you promptly.
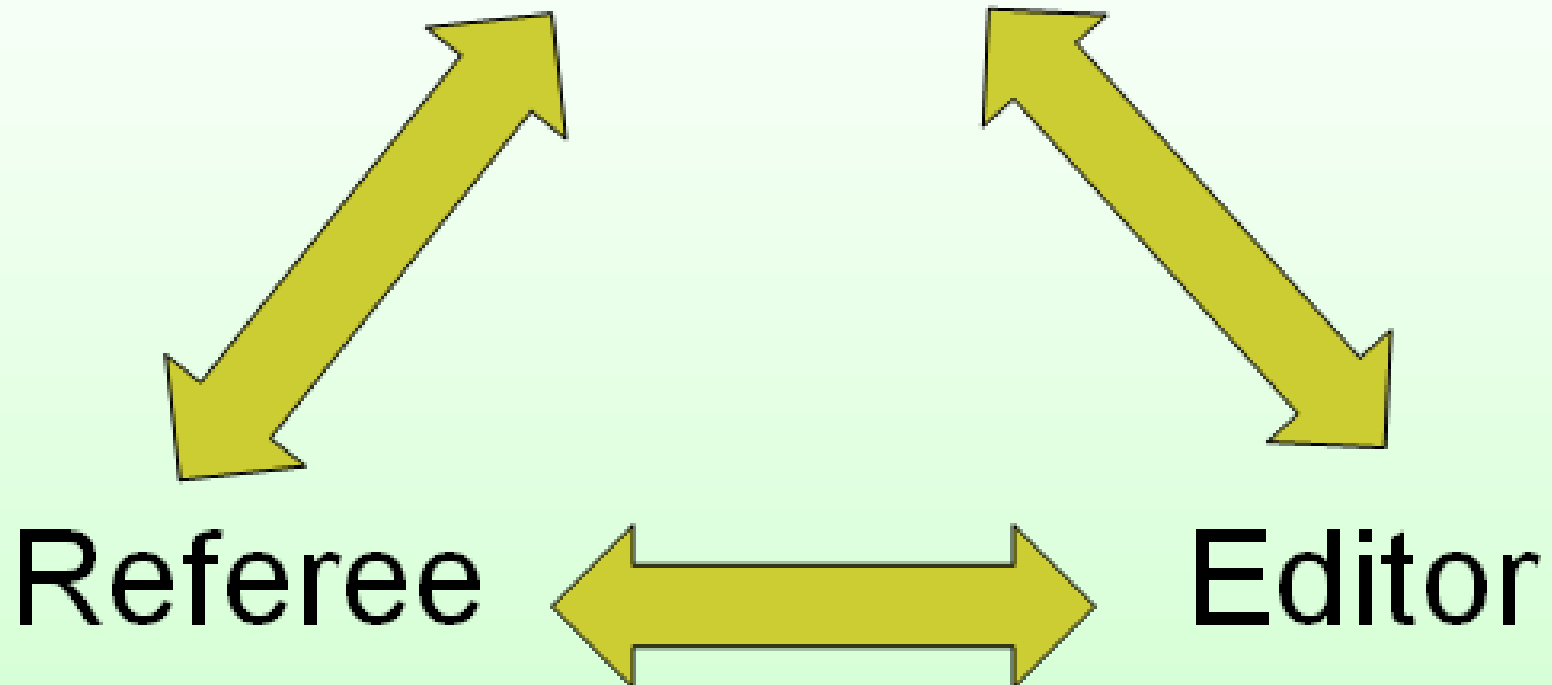
Author: Roles and Responsibilities

1. Complete analysis and ensure scientific validity and reliability of results.

2. Develop plots, tables, and text to clearly convey results and significance.

3. Do thorough literature search to identify all relevant previous publications (and posts to arXiv.org).

4. Identify the most appropriate target journal based on relevance and particular acceptance criteria.

5. Edit text, plots, and tables for journal style rules.

6. If required by the journal, carefully develop a specific statement of justification (SoJ).

7. Submit to journal with cover letter suggesting referees to consult or avoid (plus SoJ, if required).

4. **Identify the most appropriate target journal based on relevance and particular acceptance criteria.**

Authors should carefully consider the target journal:

- Can the acceptance criteria of this journal be met?

- If a statement of justification is required, can a strong case be made that this is true?

- Are several of the relevant citations published in the target journal?

- Is any length constraint (e.g., 3500 words for PRL) achievable for this work?

- Is the manuscript prepared in good English and in the style required by this journal?

Note: Failure to answer YES to any of the above can result in RWER: Rejection Without External Review

Editor: Roles and Responsibilities

Manage a quality peer-review process

- **Reject Without External Review (RWER)? If not, choose best available referees**
- **Facilitate constructive scientific dialogue**
- **Make sound editorial decisions**
- **Ensure that high-quality papers are published**
- **Help authors to improve papers**
- **Help authors, referees, and readers to understand the journal's acceptance criteria**

Referee: Roles and Responsibilities

1. Determine whether conflict of interest creates bias (either positive or negative); if so, decline to review.
2. If unable to report in a timely fashion, communicate expected delay to the editor and ask if delay is OK.
3. Skim paper to judge that you have expertise to review.
4. Familiarize yourself with acceptance criteria of this particular journal and any instructions from editors.
5. Carefully review manuscript and write report that:
   i. Is collegial, respectful, and criticizes constructively
   ii. Clearly recommends either eventual acceptance, rejection, or submission to some other journal
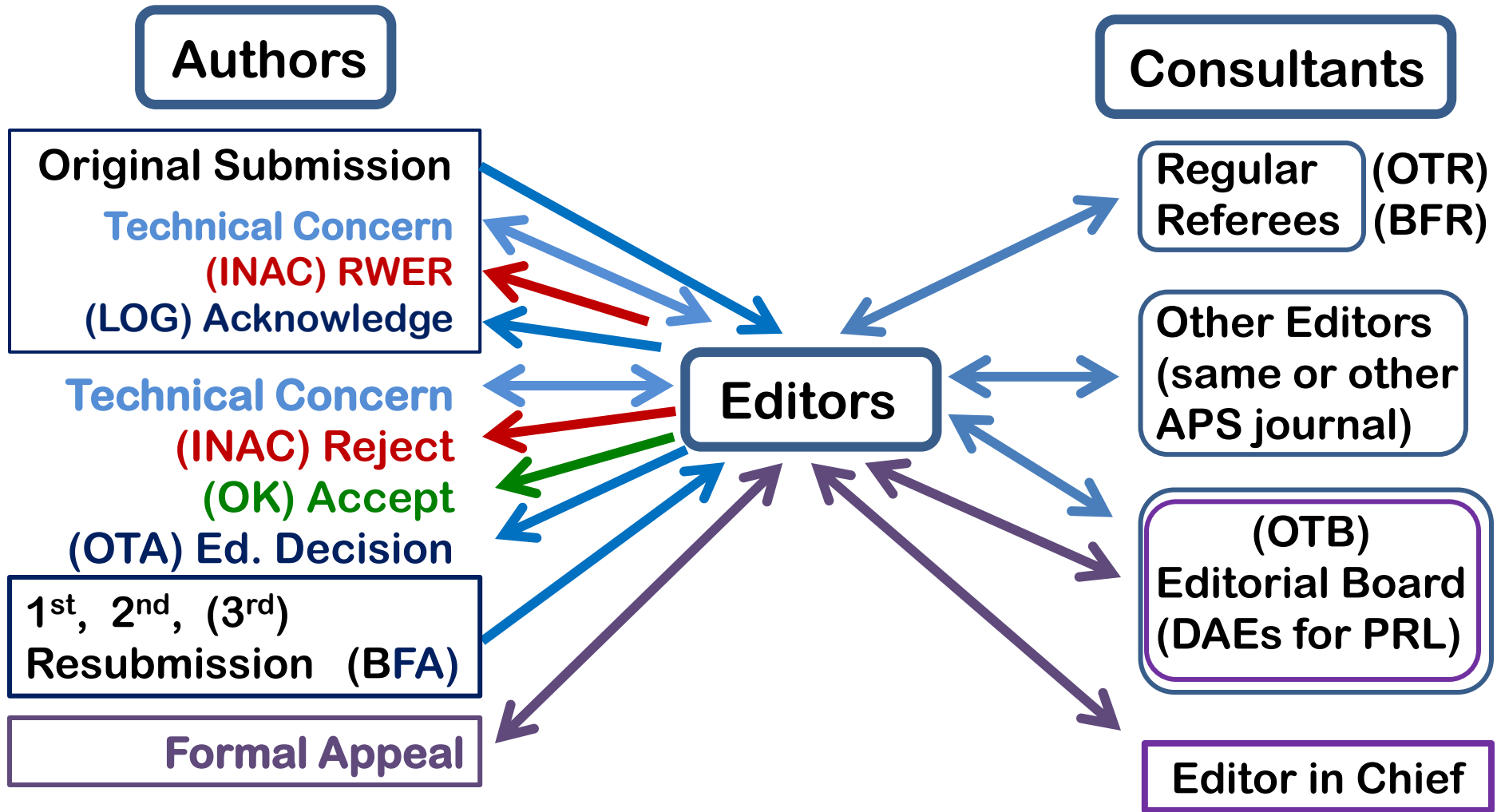   iii. Is returned promptly with any confidential remarks clearly marked for editor's eyes only

Review Process in the Physical Review

Rule #1: APS Editors cannot accept papers without review.

Rule #2: APS Editors are encourged to reject without review.

Authors

Original Submission
Technical Concern
(INAC) RWER
(LOG) Acknowledge

Technical Concern
(INAC) Reject
(OK) Accept
(OTA) Ed. Decision

1st, 2nd, (3rd) Resubmission (BFA)

Formal Appeal

Editors

Consultants

Regular Referees **(OTR)** **(BFR)**

Other Editors (same or other APS journal)

(OTB) Editorial Board (DAEs for PRL)

Editor in Chief

Brant Johnson

Tips on Resubmission
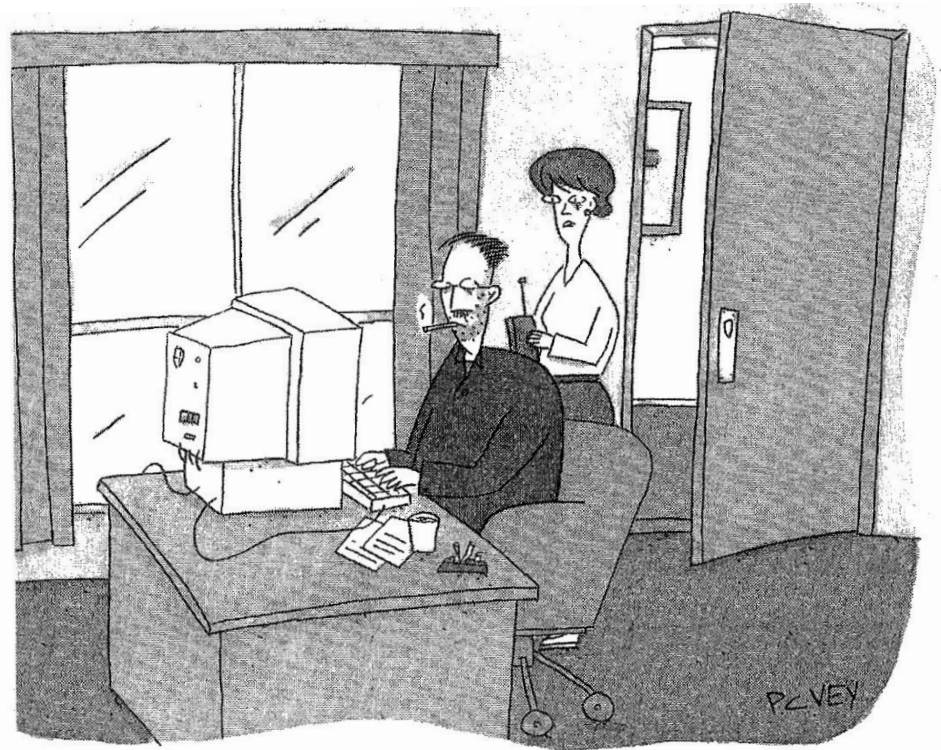
"Your editor wants to know if you have enough flexibility to just give up."

- **Get into your ground state**
- **Be succinct; brevity is the soul of wit**
- **Make substantive arguments**
- **Imagine how an editor would view the material at hand**
- **Use the "rock sandwich" approach.**

Rock Sandwich Resubmission

Fluffy bread opening

Thank you for carefully reading our manuscript and offering constructive criticism.

more bread

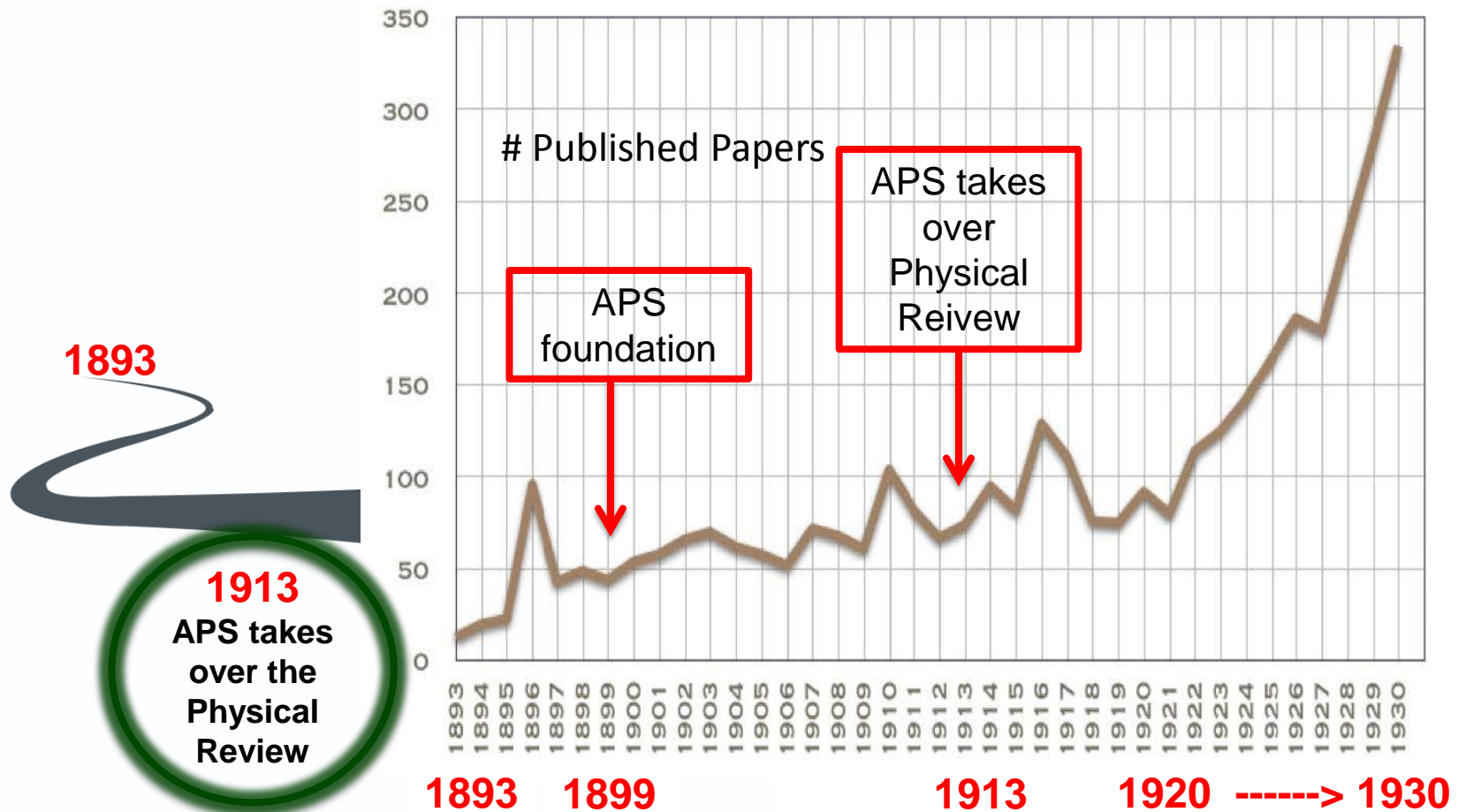**[Point-by-point responses with "done" or "fixed" where agreeable]**

Rocks

[When necessary]
… we respectfully disagree, because … We decline to make this change.
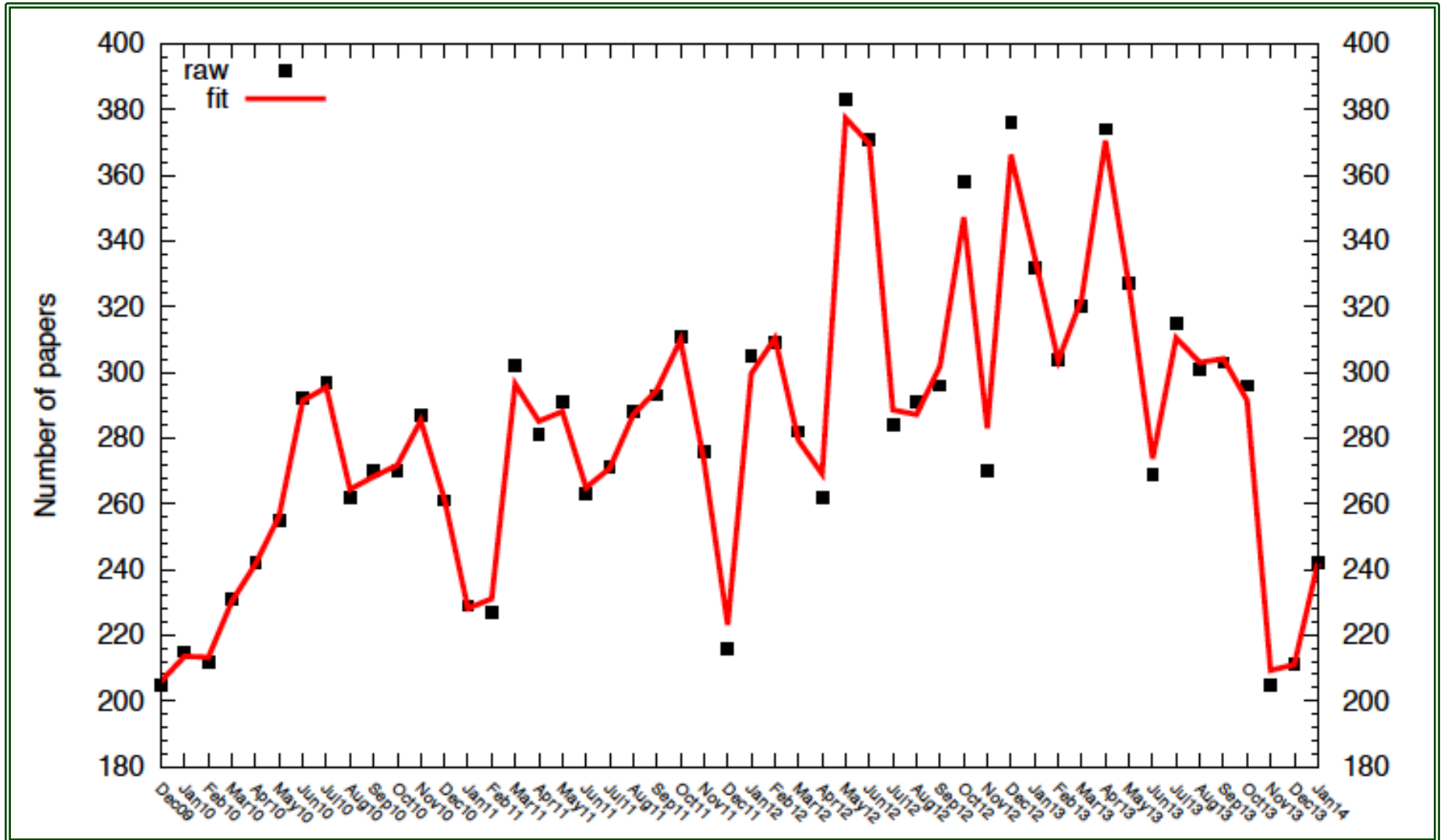
Fluffy Bread closing

Thank you again for the time and effort you expended to review our manuscript and to help us improve the presentation.

The Physical Review Family

To advance and diffuse the knowledge of physics

PRL papers published per month

2014 Zimanyi School − Brant Johnson − Physical Review Letters
and the Scientific Publishing Triad: Authors, Referees, and Editors

PRL's reinvigoration

PRL Journal Statistics				
	Nuclear (section L2)		Journal Total	
Dates	Nov12 – Mar13	Nov13 – Mar14	Nov12 – Mar13	Nov13 – Mar14
Submitted	114	138	4728	4793
Accepted	45	52	1400	981
Acceptance Rate	39%	38%	30%	20%

Perils of Being An Editor

Quark Matter 2005: Excursion to Castle Visegrad

Backups

How do APS editors select referees for a paper?

Editors look for referees in:
- **References (referees of, authors of)**
- **Referee expertise in APS database**
- **Related papers in Web of Science, SPIN, NASA, Google, APS database (authors, citing papers)**
- **Referees suggested by authors or other referees**
- **Editor's mental database**

Editors generally avoid:
- **Coauthors (current or previous)**
- **Referees at same institution as authors**
- **Acknowledged persons**
- **Direct competitors (if known)**
- **Busy referees (currently reviewing for PR/PRL)**
- **Overburdened referees (> 15 mss/past year)**
- **Consistently slow referees (>8 weeks [>5 for PRL] to review)**
- **Referees who consistently provide poor reports**