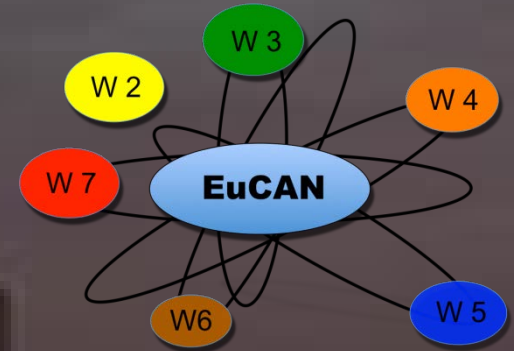


impact factors & accelerator journals



Frank Zimmermann

EuCARD-2 EuCAN workshop

“Universities meet Laboratories”

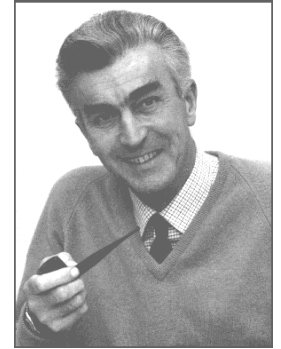
Frankfurt am Main, 30 September 2014

many thanks to Brant Johnson & Debbie Brodbar

different approaches to publishing

attitude at some laboratories:

“... if you have time to write papers you do not have enough real work to do...”



“We publish in concrete and steel!”, John B. Adams

situation at universities (UK, Italy, Germany, US,...):

journal publications, impact factor or Hirsch index
important for promotion and advancement in
comparison with other physicists & scientists
often significant portion of evaluation process

in which journals do accelerator physicists publish?

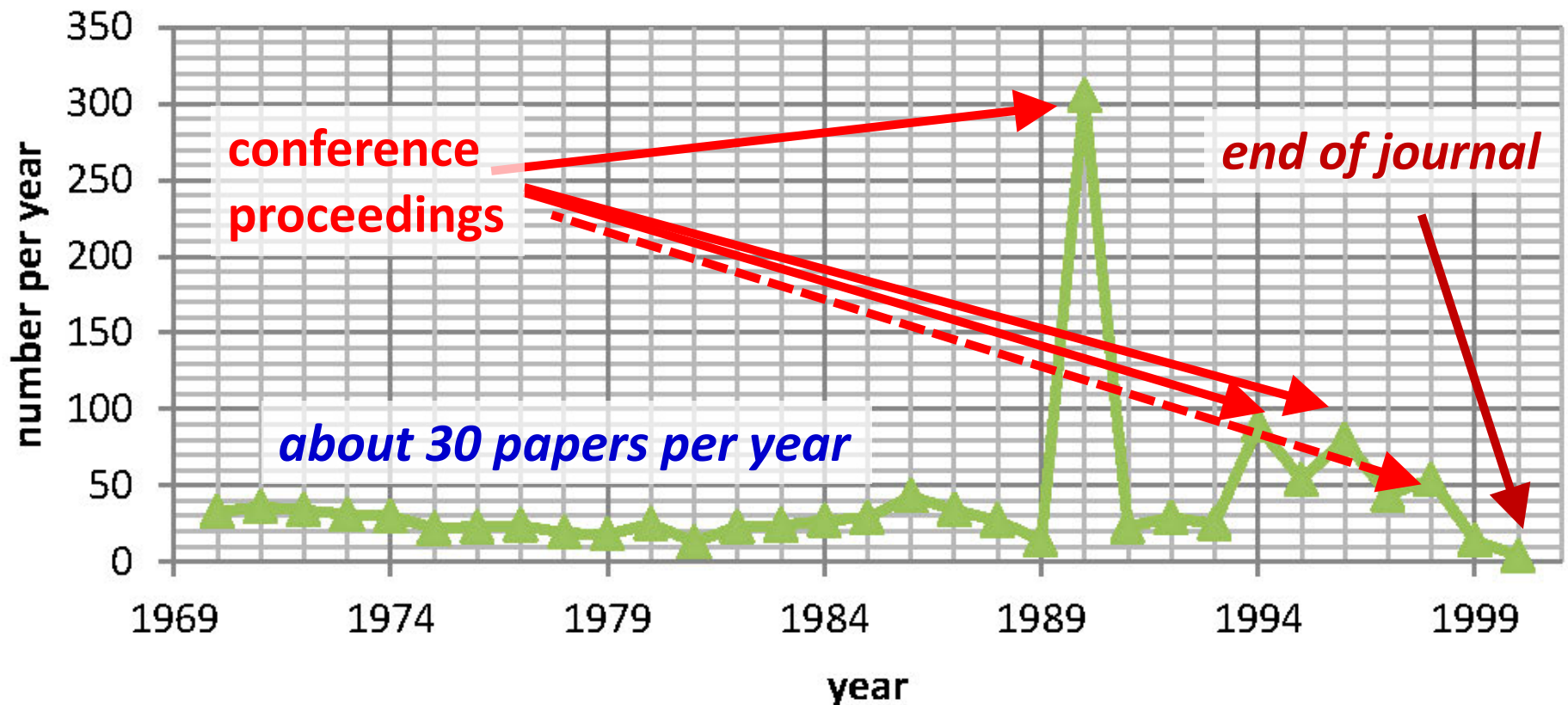
- **Physical Review Special Topics- Accelerators and Beams**
- **Particle Accelerators (historical)**
- Physical Review E (historical)
- Review of Accelerator Science and Technology (RAST)
- Nuclear Instruments & Methods A & B
- Review of Scientific Instruments (AIP)
- European Physics Journal
- New Journal of Physics
- Journal of Instrumentation (JINST)
- Laser and Particle Beams (Cambridge UP)
- Physical Review Letters
- Nature
- Reviews of Modern Physics
- PTEP
- ...

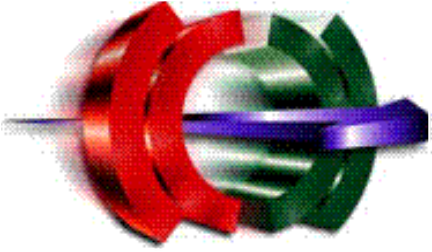
the 30 years of *Particle Accelerators*



Editor
E. Keil

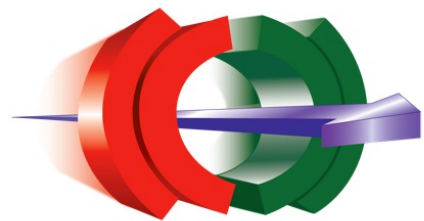
Particle Accelerators Publications





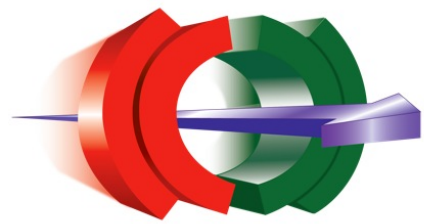
Brief history of Physical Review and American Physical Society

- 1893: Physical Review founded by 3 physicists at Cornell Univ.
- 1899: American Physical Society (APS) was founded
- 1912: Physical Review ceded by editors to APS
- 1929: Reviews of Modern Physics and Letters to the Editor
- 1958: Physical Review Letters evolved from Letters to Editor
- 1970 : Physical Review splits into A, B, C, and D
- 1993: Physical Review E evolved from Phys. Rev. A15
- 1998: FOCUS launched for outreach to students & researchers
- 1998: Physical Review Special Topics – Accel. & Beams (PRST-AB)**
- 2005: PRST – Physics Education Research (PRST-PER)
- 2009: PHYSICS (Viewpoints, Trends, and Synopsis)
- 2011: Physical Review X – Gold Open Access
- 2013: Physical Review Applied – Applied Physics; not Open Access



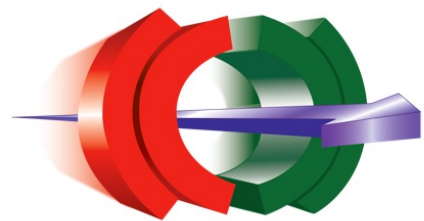
A Brief History of ... Beam Physics in the Physical Review

- 1970:** Phys. Rev. splits into A (General), B (Cond. Matter), C (Nuclear), & D (High Energy or Particles & Fields).
Beam physics primarily published in PRD, but some topics also in PRA and other PR journals.
- 1989:** Plasma and Beams section created in **PRA-15**
- 1992:** Physics of Beams section split from plasma in PRA-15;
PRD editors encourage beam physics subs to PRA-15.
- 1993:** PRA-15 (all except AMO, PRA-1) becomes **PRE**
- 1998:** **Birth of PRST-AB** for both fundamental and applied Beam Physics & Accelerator Technology.
- 2007:** **PRST-AB designated as the home for all beam physics in the Physical Review.** Physics of Beams section in PRE is retired.



Physical Review Special Topics – Accelerators & Beams

- Pioneering **OPEN ACCESS** journal launched in 1998; initiative of *founding editor Robert H. Siemann* and colleagues, a journal covering *all aspects of accelerators*
- *Funding from Sponsors* allowing distribution at *no cost to authors or readers*
- **Affiliated Professional groups** – the **EPS-AG and APS-DPB** are responsible for the health and vitality of PRST-AB by providing advice and encouraging scholarly publication in accelerator science and technology
- **Role of Editorial Board** - Editorial Board members propose new initiatives, provide advice on editorial policy, and help resolve cases where there is substantial disagreement between referees and/or authors
- **Considerations for board membership** choice:
 - * **Reputation**
 - * **Demonstrated interest** in the scholarly and publication aspects of accelerator science and technology
 - * Research **specialties**
 - * **Representation from regions** of the world with accelerator activities.
 - * Balance between **national laboratories and universities**



PRST– AB Editors & Editorial Board

APS Editor in Chief

Gene D. Sprouse



APS Editorial Director

Daniel T. Kulp



Editor

Frank Zimmermann, CERN

Associate Editors

Jean Delayen, ODU

Brant M. Johnson, Brookhaven National Laboratory

Kazuhito Ohmi, KEK



Senior Assistant Editor

Debbie Brodbar, APS Editorial Office



Assistant Editor

Maria Poko, APS Editorial Office

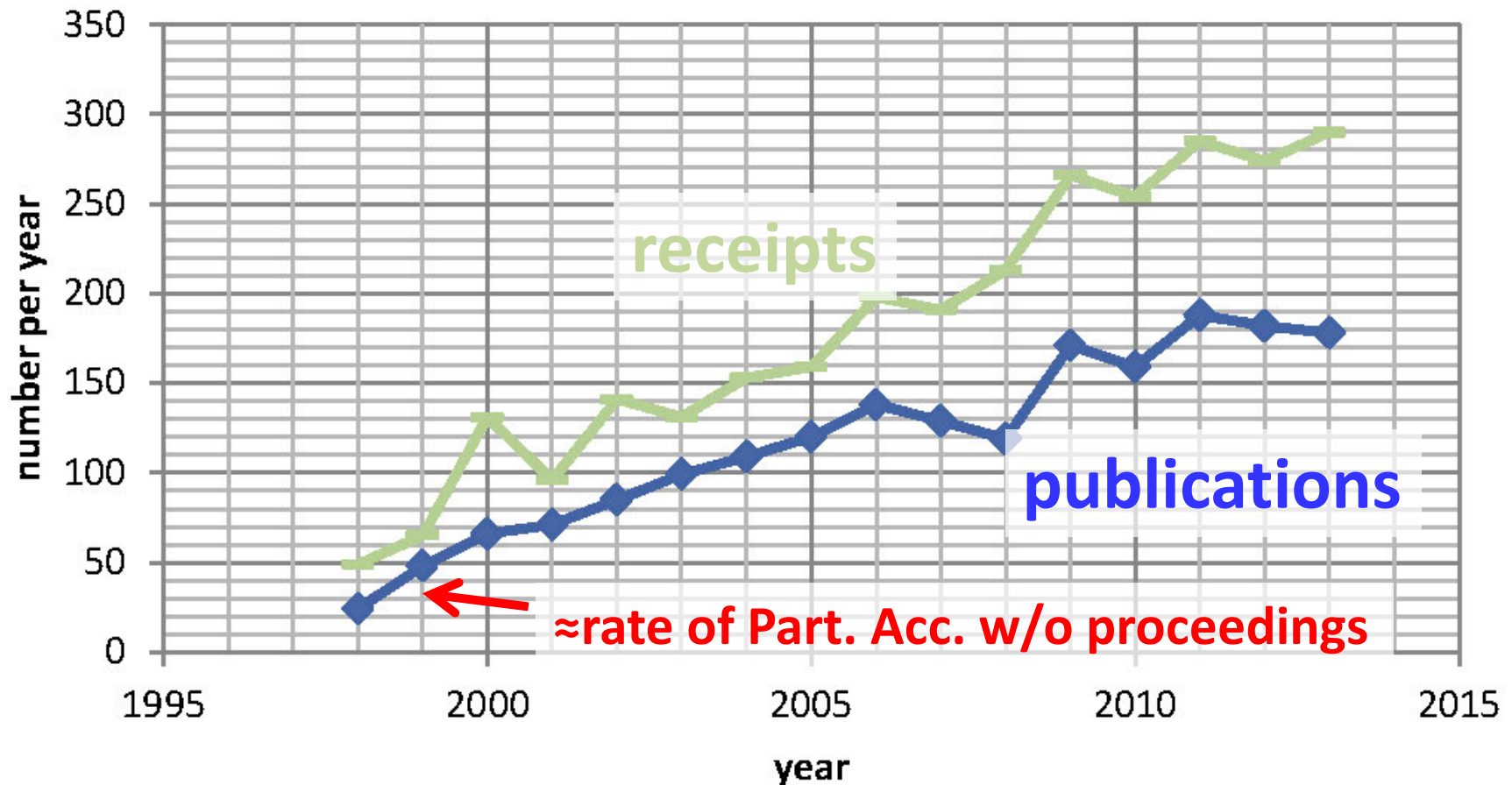


Editorial Board

- [(2008) - Rick Baartman, Samuel Krinsky, Michael W. Poole, Ferdinand Joachim Willeke
(2009) - Oliver Boine-Frankenheim, Shinji Machida, Lia Merminga, Peter Ostroumov
(2010) - Reinhard Brinkmann, Yong Ho Chin, Jean Delayen, Jean-Marc Filhol]
(2011) - Shane Koscielniak, Eugene Perevedentsev, Vladimir Shiltsev, Andy Wolski
(2012) - John Corlett, Luca Giannessi, Lars Gröning, Gennady Stupakov
(2013) - Marie-Emmanuelle Couprie, Georg Hoffstaetter, Richard Walker, Kaoru Yokoya]
(2014) - Klaus Flöttmann, Wolfram Fischer, Andrei Seryi, Uli Wienands
(2015) - Oliver Brüning, Sarah Cousineau, William Fawley, Steve Peggs
(2016) - Jim Clarke, Olivier Napoly, Qing Qin, Charles Reece



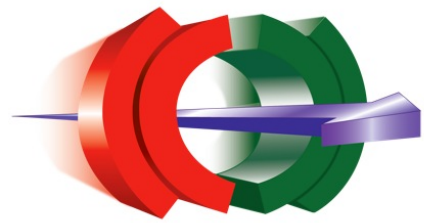
PRST-AB annual manuscript receipts & publications



receipts climb steadily

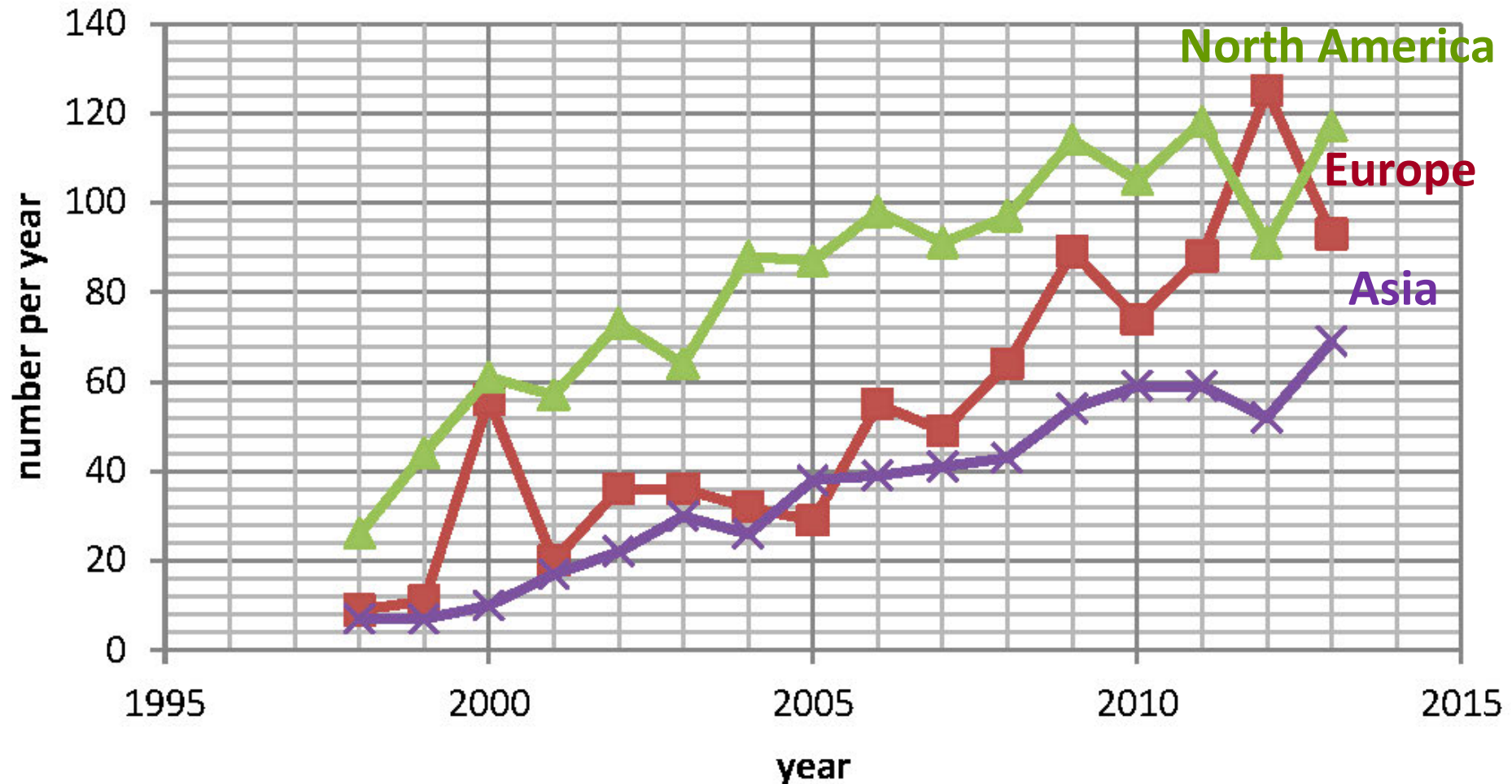
dip in publications in 2008 (effect of going to two referees / paper?)

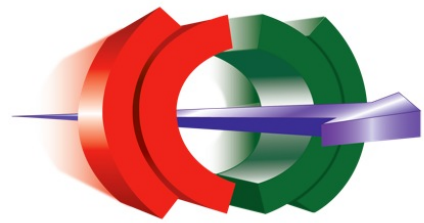
recently slight decrease in publications (higher standard?)



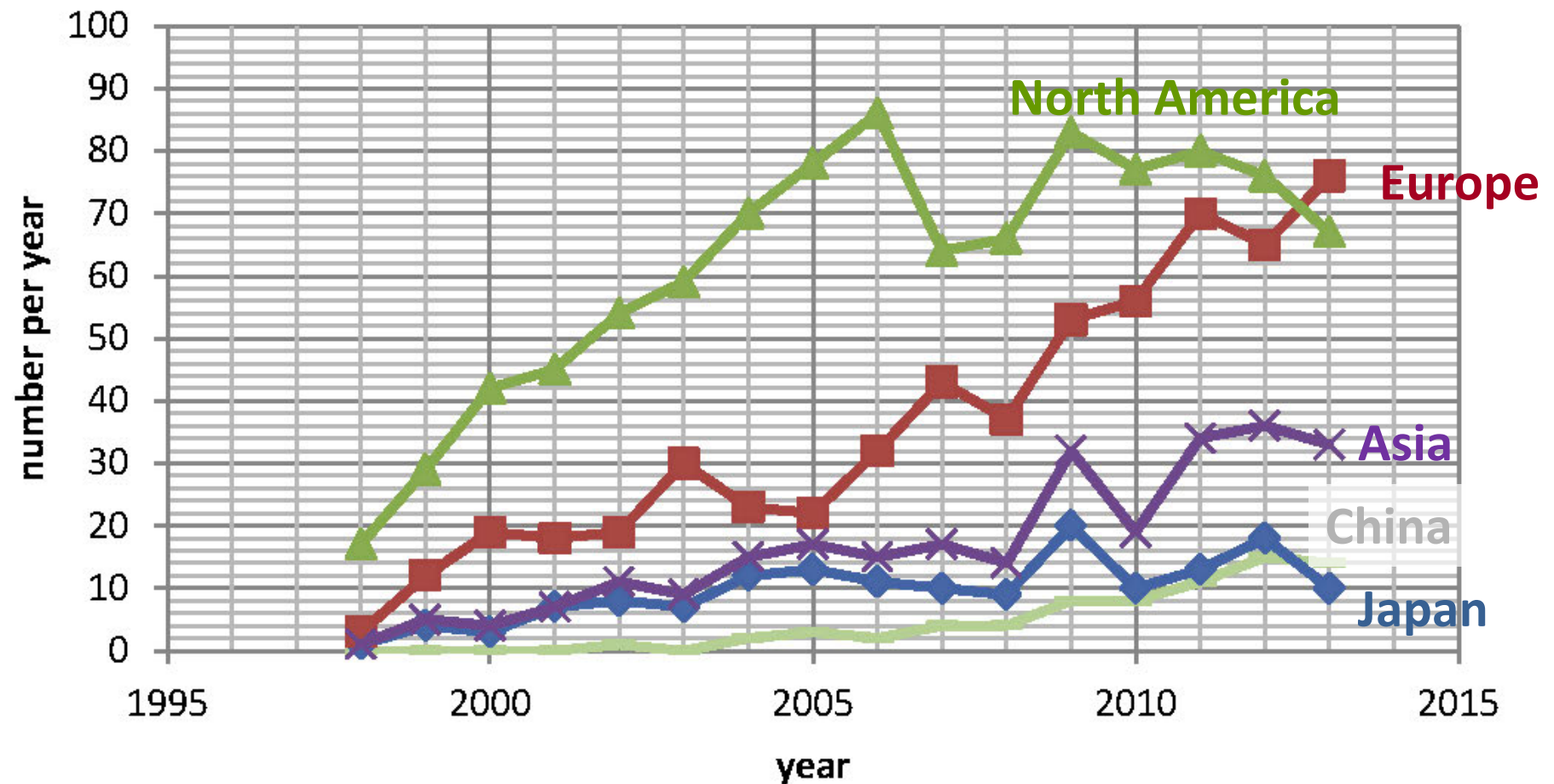
geographical trends

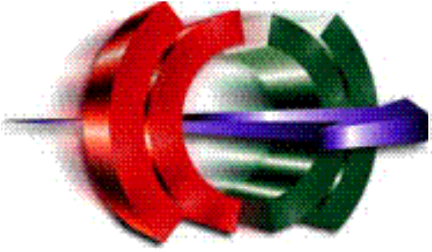
receipts





geographical trends publications





Impact Factor (IF)

- *Thompson Scientific (formerly ISI)*

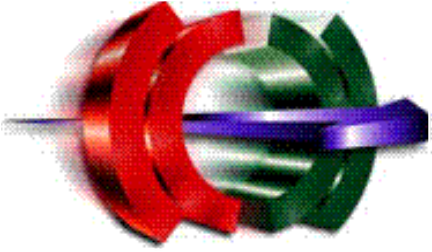
IF: The total number of citations (in all journals) in a given year to articles published in a specific journal in the previous two-year period -- divided by the total number of articles published in that journal in that same two-year period.

Example: Calculation of 2011 Impact Factor for PRST-AB:

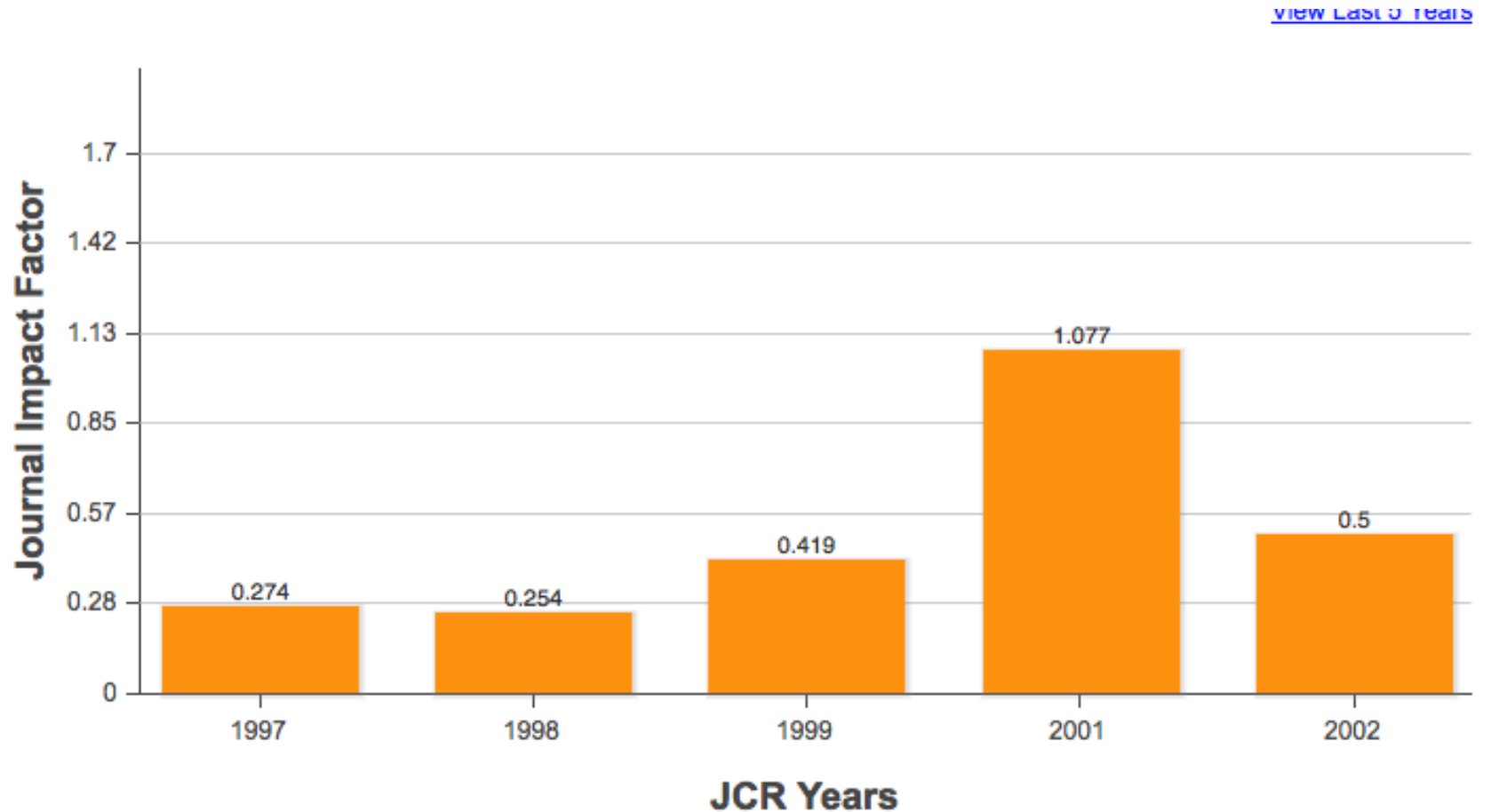
A = the number of times that articles published in PRST-AB in 2009 and 2010 were cited by articles in indexed journals during 2011.

B = the total number of "citable items" published in PRST-AB in 2009 and 2010. ("Citable items" are usually articles, reviews, proceedings, or notes; not editorials or letters to the editor.)

The 2011 impact factor for PRST-AB = $A/B = 503 / 331 = 1.520$



Impact Factor of Particle Accelerators



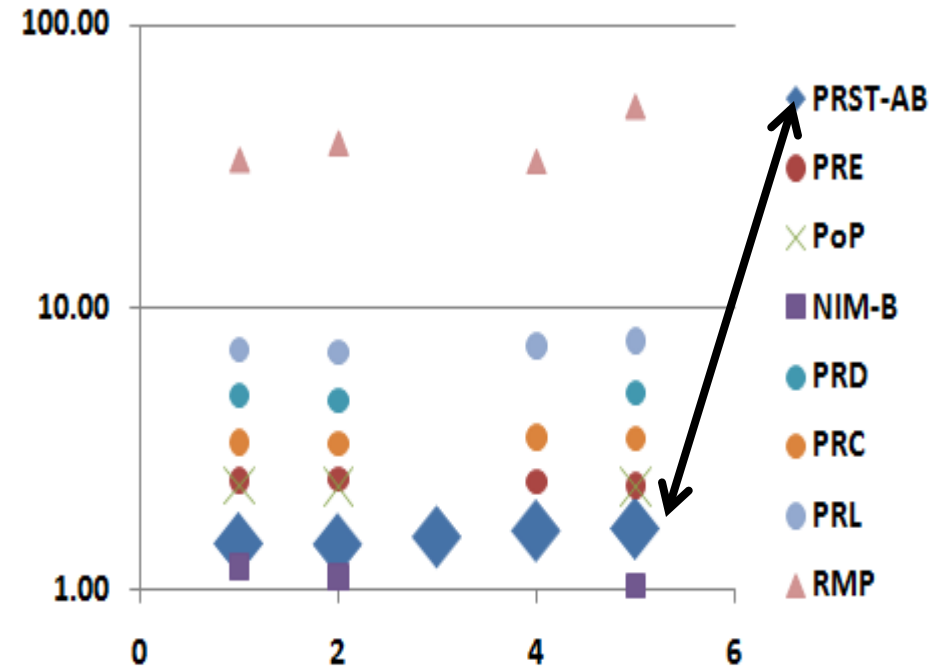
MARKED JOURNAL LIST

Sorted by: Journal Title

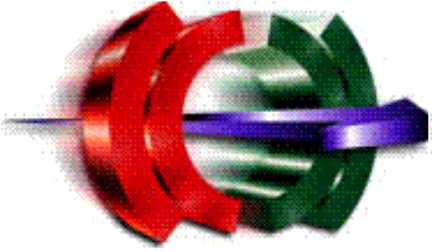
Abbreviated Journal Title	ISSN	2010 Total Cites	Impact Factor	5-Year Impact Factor	Immediacy Index	2010 Articles	Cited Half-life	Eigenfactor TM Score	Article Influence TM Score
PHYS REV A	1050-2947	84545	2.861	2.746	0.775	2849	8.3	0.23352	1.049
PHYS REV B	1098-0121	268704	3.772	3.362	0.954	5991	8.6	0.78330	1.389
PHYS REV C	0556-2813	33558	3.416	3.173	0.811	1009	6.6	0.08396	0.937
PHYS REV D	1550-7998	119292	4.964	4.340	1.557	2809	6.1	0.30809	1.259
PHYS REV E	1539-3755	68958	2.352	2.458	0.530	2315	6.7	0.24317	1.047
PHYS REV LETT	0031-9007	335409	7.621	7.154	1.836	3118	7.6	1.24359	3.486
PHYS REV SPEC TOP-AC	1098-4402	1492	1.661	1.500	0.352	162	4.1	0.00844	0.655
PHYS LETT A	0375-9601	24942	1.963	1.995	0.390	872	7.5	0.07067	0.697
PHYS LETT B	0370-2693	58367	5.255	4.026	1.926	769	9.8	0.14338	1.582
APPL PHYS LETT	0003-6951	197445	3.820	3.845	0.664	4459	5.6	0.72217	1.399
NUCL INSTRUM METH A	0168-9002	19927	1.142	1.109	0.218	1291	7.1	0.05103	0.358
NUCL INSTRUM METH B	0168-583X	14343	1.042	0.984	0.310	693	7.4	0.03594	0.334
REV SCI INSTRUM	0034-6748	21869	1.598	1.745	0.394	1145	8.1	0.05935	0.706
REV MOD PHYS	0034-6861	29868	51.695	48.621	8.219	73	>10.0	0.10791	31.300

Comparison of journal IF 2006-2010

Journ/year	2006	2007	2009	2010
PRST-AB	1.47	1.46	1.63	1.66
PRE	2.44	2.48	2.4	2.35
PoP	2.35	2.33		2.32
NIM-B	1.21	1.11		1.04
PRD	4.9	4.7		4.96
PRC	3.33	3.3	3.48	3.42
PRL	7.07	6.94	7.33	7.62
RMP	33.5	38.4	33.1	51.7

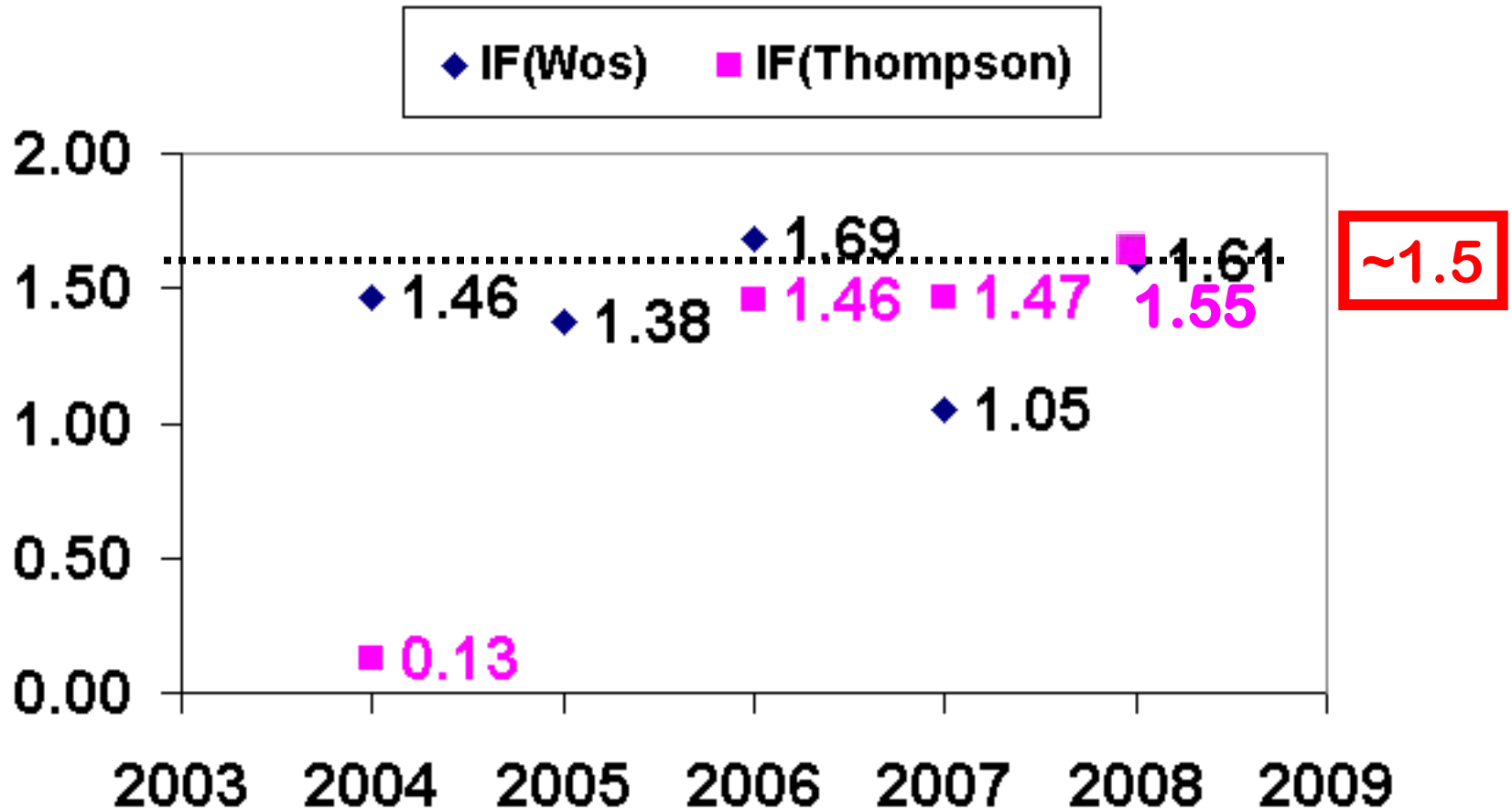


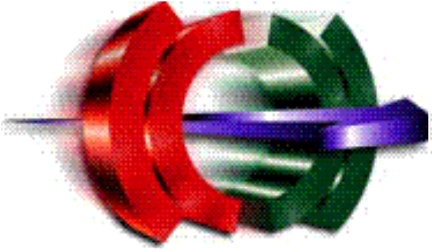
Thompson Scientific (formerly ISI) stresses that a journal's **impact factor is a meaningful indicator only when considered in the context of similar journals covering a single field of investigation or subject discipline.**



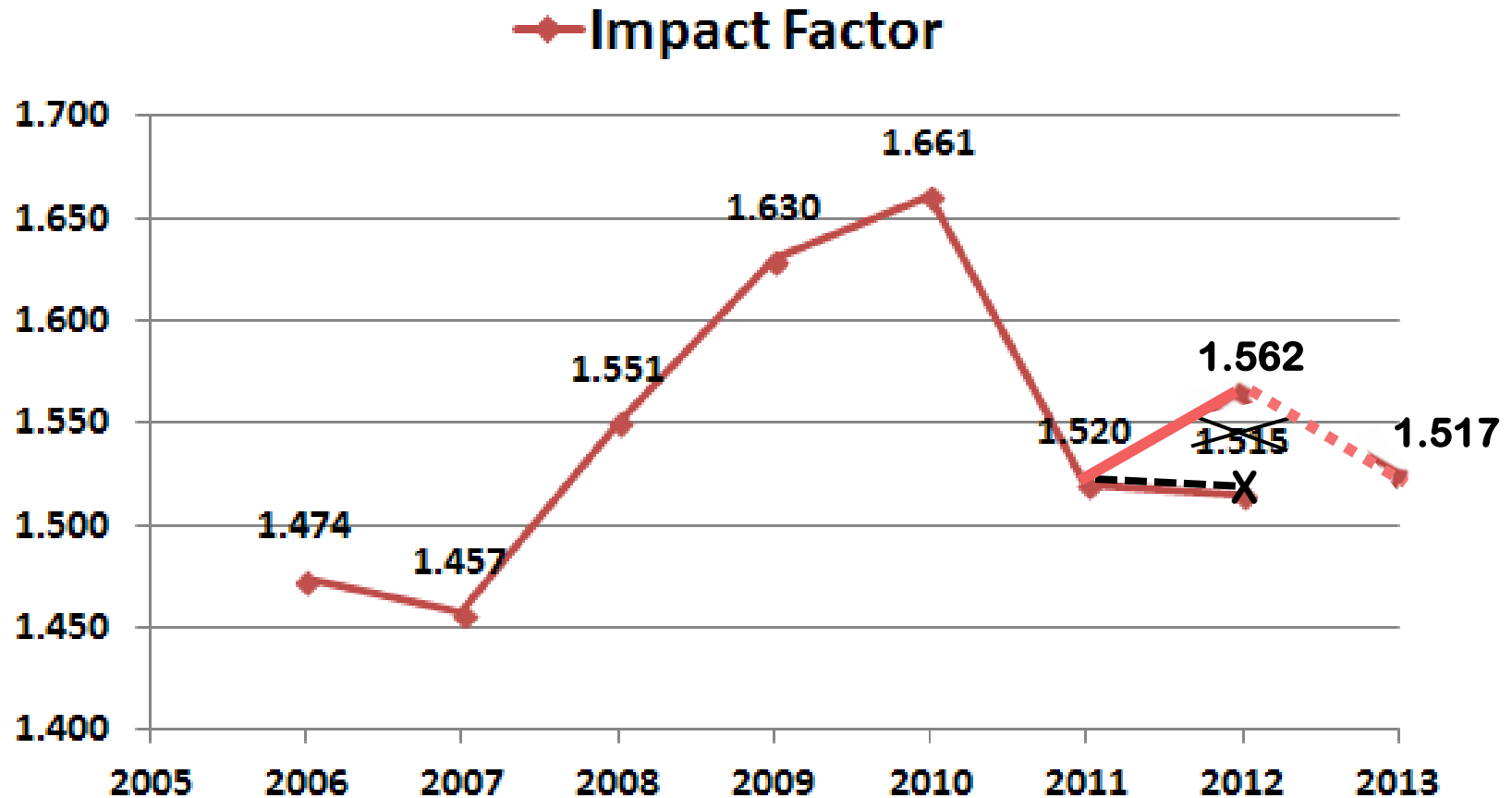
Graphical comparison of PRST-AB Impact Factors: WoS vs. Official

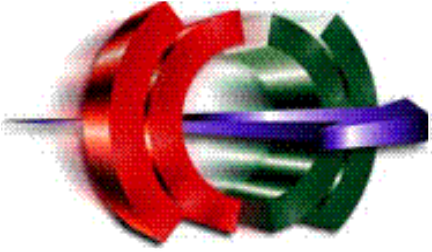
World of Science (WoS) is Thompson's own database





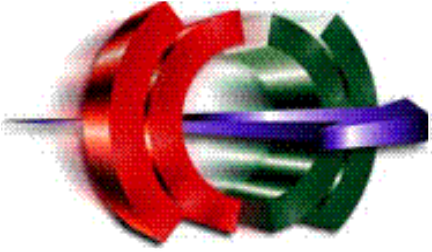
PRST-AB Impact Factors 2007-2013





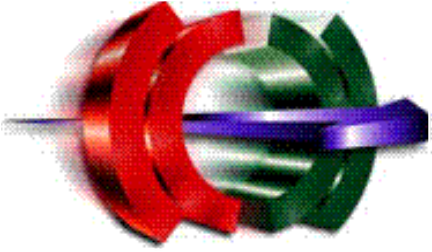
how can we improve the impact factor?

- encourage authors to cite more
- ask referees to check references
- reject more of those articles which are unlikely to be cited
- ...



change of attitude!?

- if the community wishes a higher impact factor we need to start quoting our colleagues' work!
- PRST-AB is asking referees to comment specifically on the list of references
- recent reply from an author:
“All results in this paper follow from Maxwell's equations” ... and therefore no references need to be included to any earlier papers by others which already contained some of the same results ...



2012 & 2013 Projected Impact Factors & Citations within 5 or 6 months

Manolis Antonoyiannakis (PRX Senior Assistant Editor):

PRST-AB World-of-Science projections for Impact Factors. **official**

2012: 538 citations to 355 citable items $(538/355)= 1.515$ [1.562]

2013: 551 citations to 376 citable items $(551/376)= 1.460$

Fudge-factor projection: 1.52 +/- 0.3

=== Short-term citation Statistics for published papers ===

2012 (as of May 2013)

1 paper cited 7 times

3 paper cited 5 times

3 papers cited 4 times

4 papers cited 3 times

15 papers cited 2 times

28 papers cited 1 time

301 papers cited 0 times

(85% with no citations yet)

2013 (as of June 2014)

2 papers cited 9 times

2 papers cited 7 times

2 papers cited 6 times

3 papers cited 5 times

1 papers cited 4 times

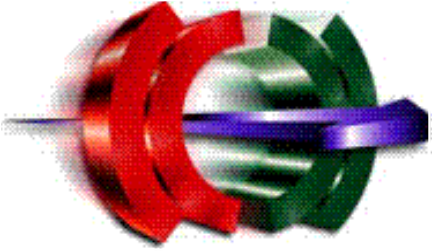
10 papers cited 3 times

13 papers cited 2 times

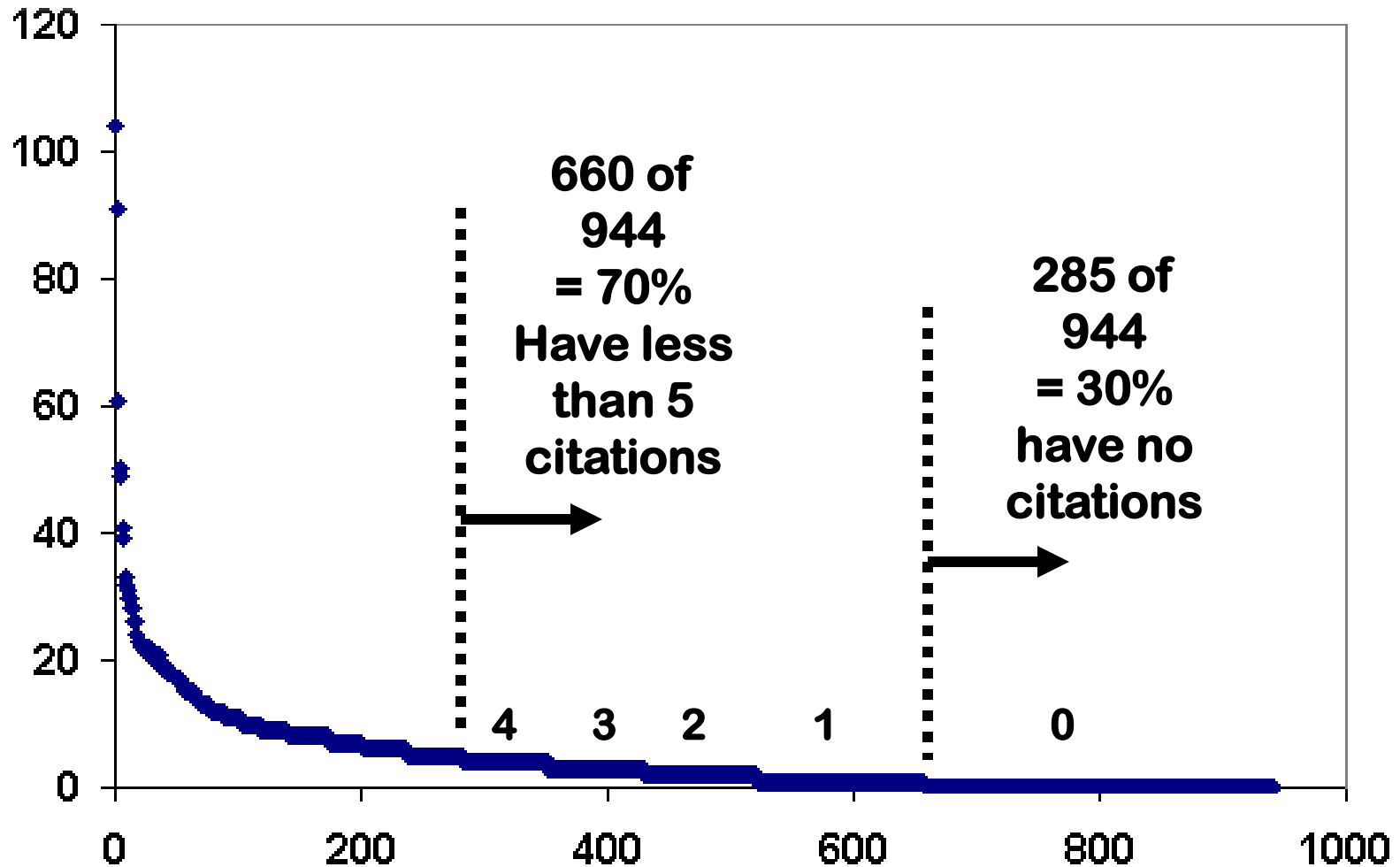
34 papers cited 1 time

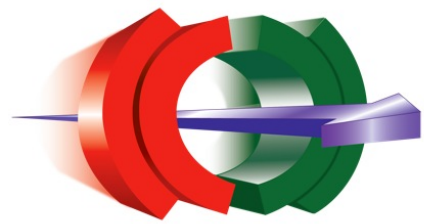
**309 papers cited 0 times
(82%)**

Brant Johnson



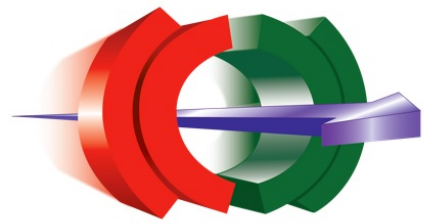
Total Number of Citations to PRST-AB papers (2001-2009)





WoS Top 5 most cited PRST-AB papers (as of 2011)

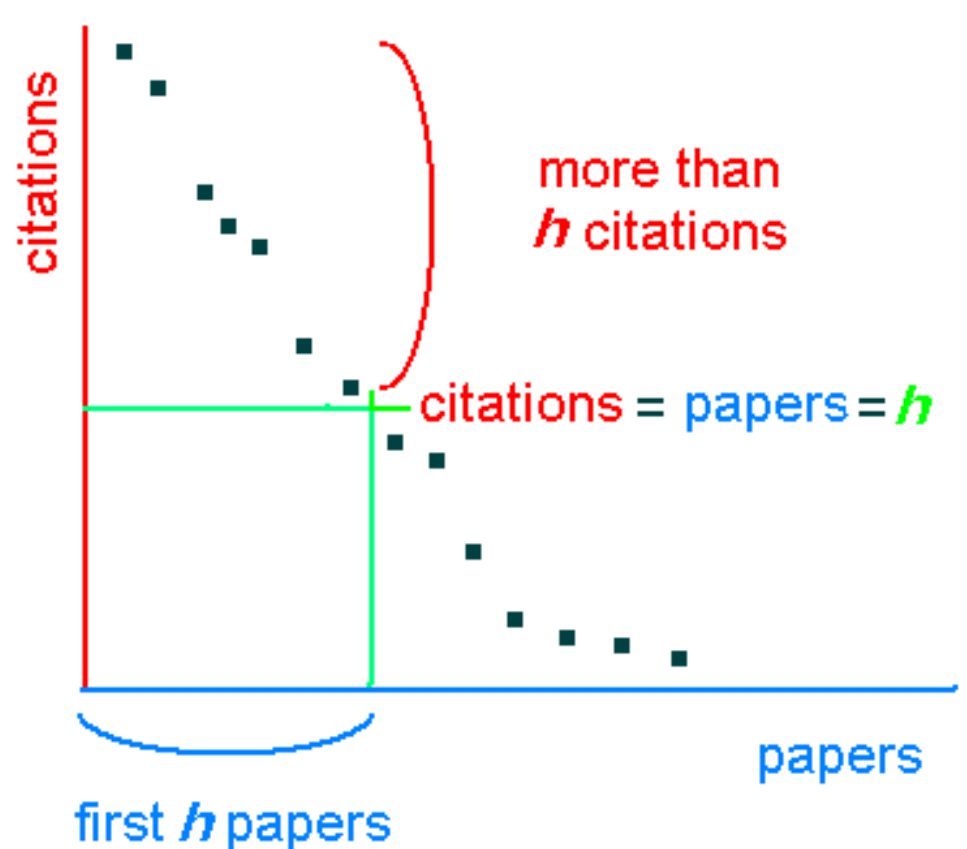
- *Zettawatt-exawatt lasers and their applications in ultrastrong-field physics* , Tajima T, Mourou G, PRST-AB 5, 031301 (2002).
- *Energetic ions generated by laser pulses: A detailed study on target properties* Roth M, Blazevic A, Geissel M, et al. PRST-AB 5, 061301(2002).
- *Recent progress in neutrino factory and muon collider research within the Muon Collaboration*. Alsharo'a MM, Ankenbrandt CM, Atac M, et al., PRST-AB 6, 081001 (2003).
- *Energy doubler for a linear collider*, Lee S, Katsouleas T, Muggli P, et al. PRST-AB 5, 011001 (2002).
- *Photonic band gap fiber accelerator* Lin, XE, PRST-AB 4, 051301 (2001).

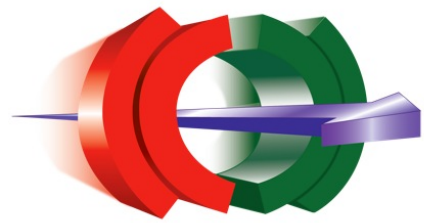


h -index (Jorge E. Hirsch)

The h -index is based on a list of publications ranked in descending order by the times cited. The value of h is equal to the number of papers (N) in the list that have N or more citations

J.E. Hirsch, *Proceedings of the National Academy of Sciences of the United States of America* 102 (46): 16569-16572
15 November 2005.





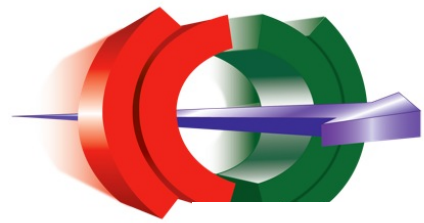
g -index (2006 Leo Egghe) and e -index (2009 Chun-Ting Zhang)

To better differentiate between individuals by reflecting the total number of citations above the h -index value.

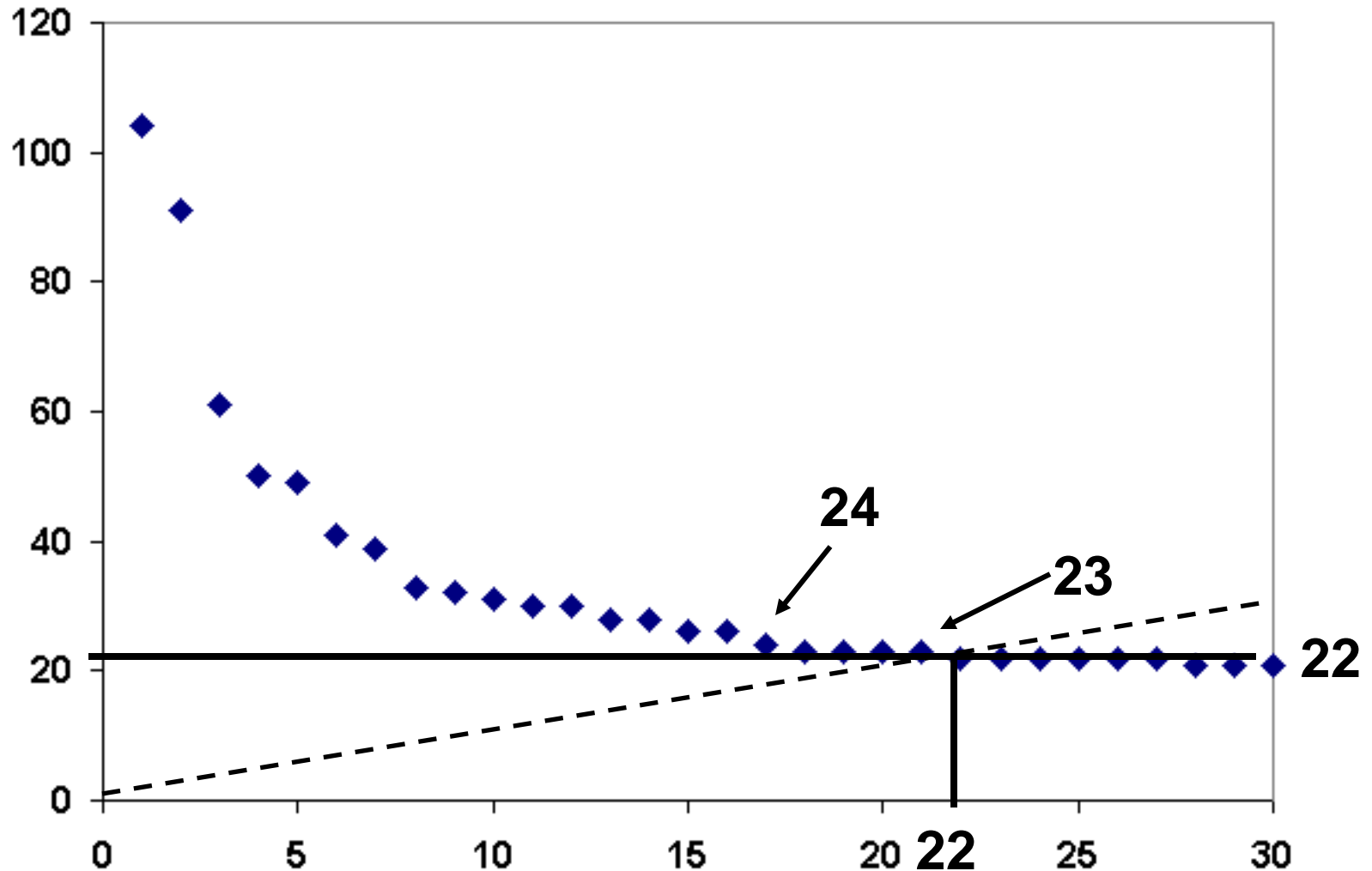
g -index: Given a set of articles ranked in decreasing order of the number of citations that they received, the (unique) largest number such that the top g articles received (together) at least g^2 citations

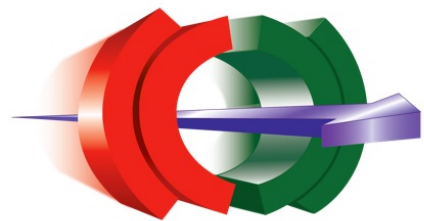
e -index: e^2 represents the ignored excess citations.





Plot of top 30 cited papers shows
that PRST-AB h -index = 22

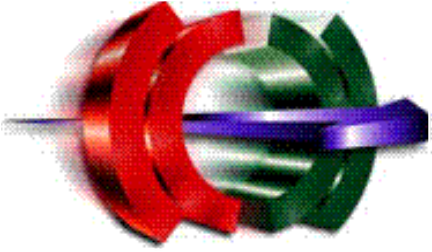




Hirsch suggestions for what h -index implies for individual physicists

- $h \sim 10$ -12 might be a useful guideline for tenure decisions at major research university,
- $h \sim 18$ could mean a full professorship,
- $h = 15$ –20 could mean a fellowship in the [American Physical Society](#), and
- $h > 45$ could mean membership in the [United States National Academy of Sciences](#).

Therefore, at only 10 years old PRST-AB was already a full professor and an APS Fellow!



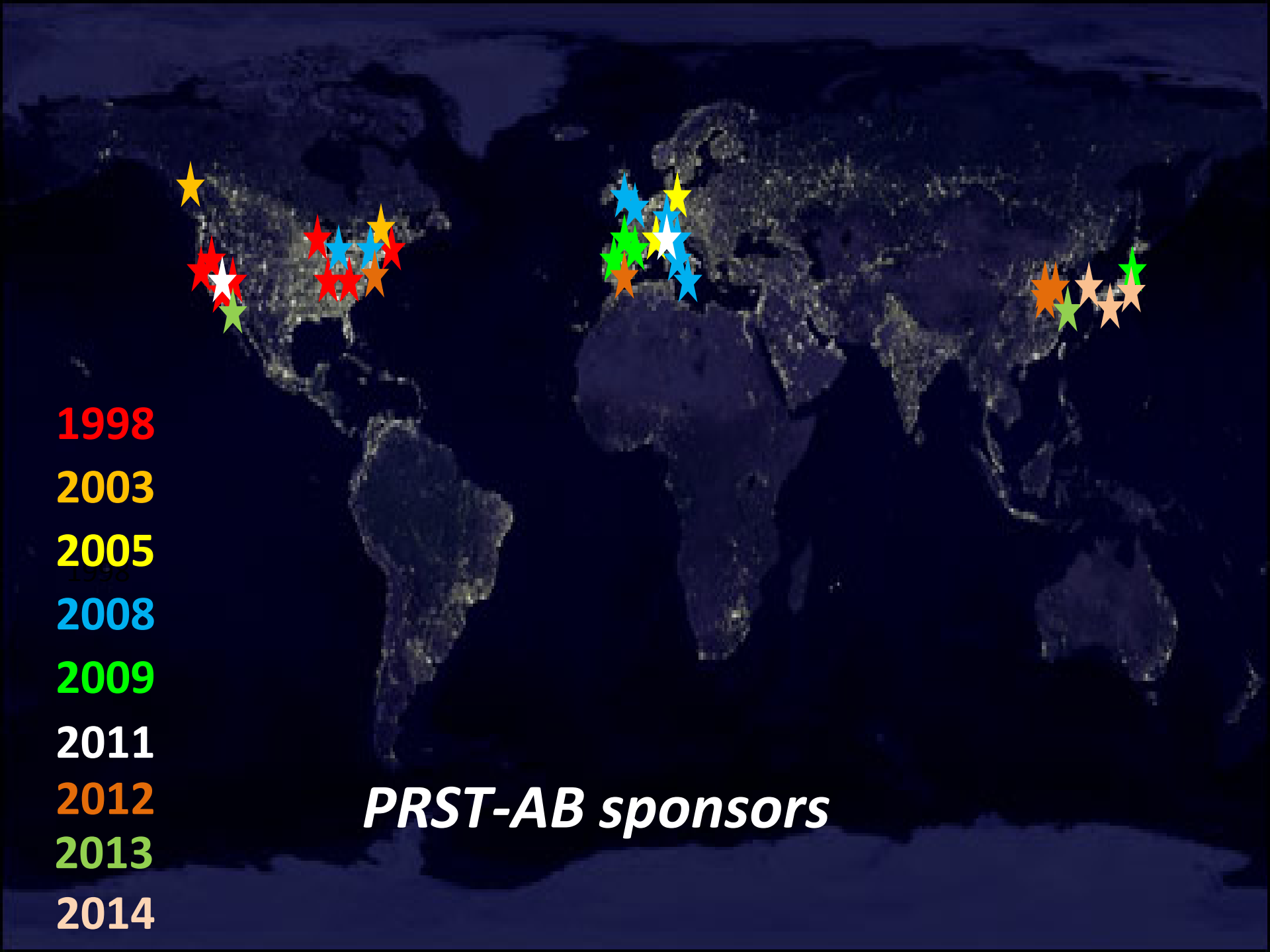
CERN - APS partnership for Open Access

18 September 2013 - Joint announcement of CERN - APS partnership on Open Access for all CERN-authored articles:

<http://journals.aps.org/edannounce/cern-and-aps-announce-partnership-for-open-access>

PRST-AB is explicitly mentioned:

"CERN and APS have been cooperating for a long time to support APS's pioneering Open Access journal Physical Review Special Topics - Accelerators and Beams that publishes articles on topics of technical innovation at CERN and elsewhere. APS and CERN are committed to continue to work together to find new ways to collaborate to provide for the widest dissemination of physics results through global Open Access initiatives."



1998

2003

2005

2008

2009

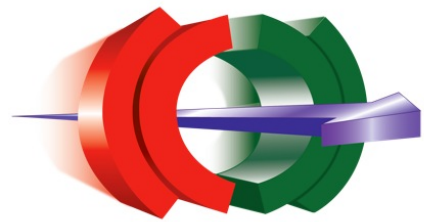
2011

2012

2013

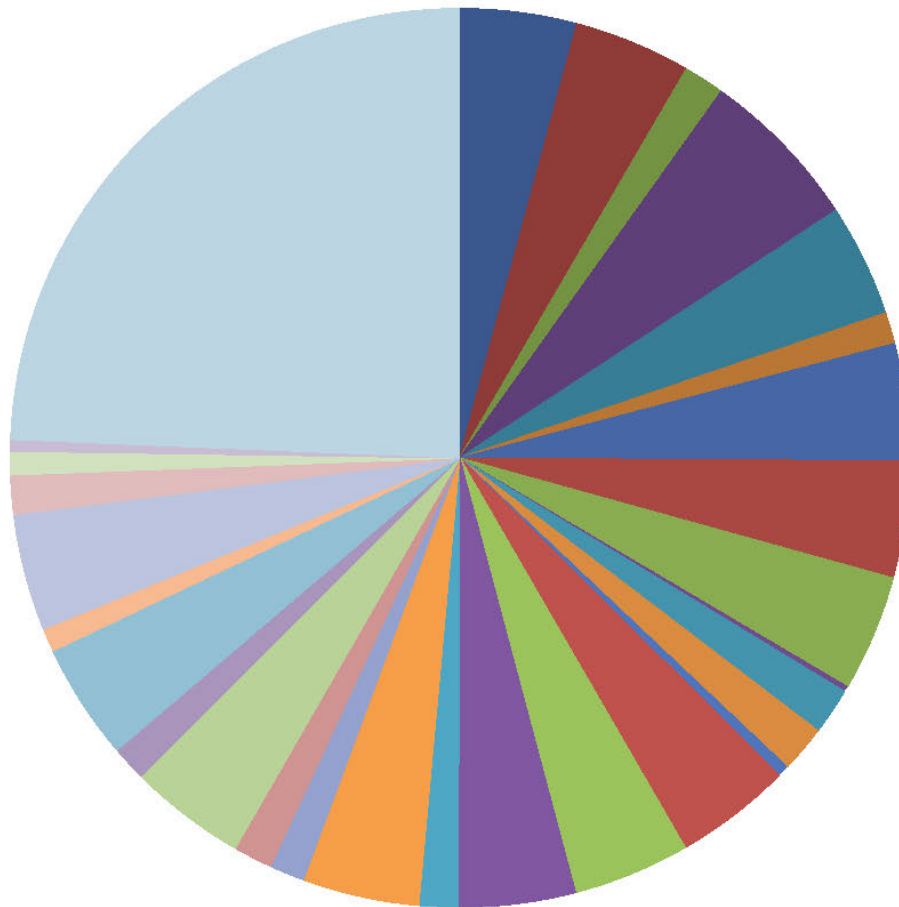
2014

PRST-AB sponsors



sponsorship coverage 2013

PRST-AB sponsorship coverage 2013



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- KEK
- Lawrence Berkeley Nat. Lab.
- LEPP - Cornell University
- Los Alamos National Lab.
- NA-PAC'13
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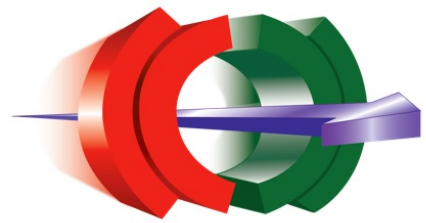


special editions & special collections

information from Bob Siemann

- a **PRST-AB invention**; originated from Bob Siemann's desire to reach out to community to increase subscriptions & readership
- at the time of invention PRSTAB was the only APS **on-line only journal**, and it was realized that these "special" editions were **easy to create**
- serious concern that PRSTAB **not** go the way of NIM and Part. Acc. by **publishing conference proceedings**; it would lower value of APS publications
- articles in special editions should **satisfy the general APS guideline** quoted here from the PRSTAB policies and procedures (Phys Rev wide policy)

"Material previously published in an abbreviated form (in a Letters journal, as a Rapid Communication, or in a conference proceedings) may provide a useful basis for a more detailed article in the *Physical Review*. Such an article should present considerably more information and lead to a substantially improved understanding of the subject. Reproduction of figures, tables, and text material that have been published previously should be kept to a minimum and must be properly referenced. In order to reproduce figures, tables, etc., from another journal, authors must show that they have complied with the copyright requirements of the publisher of the other journal. Publication of material in a thesis does not preclude publication of appropriate parts of that material in the *Physical Review*."
- this does **not require new physics results** as compared to the conference submission, but more detail, discussion, ...

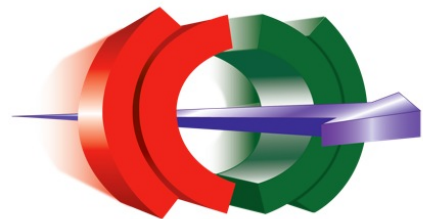


a US colleague's comment

“Papers published in Special Issues of any journal are considered to be tainted by a number of review committees in universities and labs.

Explanations that these papers are going through the complete peer review process are often brushed aside. This is actually putting the people publishing in special issues at a disadvantage.”

?



IPAC'14 announcement of PRST-AB Special Edition

5th INTERNATIONAL PARTICLE ACCELERATOR CONFERENCE
JUNE 15 - 20, 2014 | DRESDEN, GERMANY



Author Information / PRST-AB Special Issue

PRST-AB Special Issue

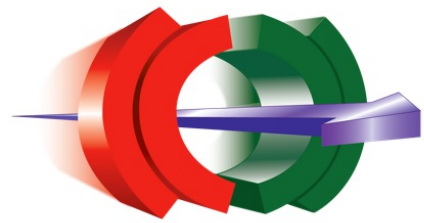
Physical Review Special Topics



Accelerators and Beams

Physical Review Special Topics - Accelerators and Beams (**PRST-AB**) is offering a Special Edition for the Fifth International Particle Accelerator Conference that will be held from 15-20 June, 2014, in Dresden, Germany. This Special Edition offers the opportunity to expand upon original research presented at IPAC'14 in a peer-reviewed journal.

PRST-AB is a peer-reviewed, all-electronic journal published by the American Physical Society (**APS**). The all-electronic nature allows "Special Editions" while maintaining thorough peer review and timely publication. Articles based on IPAC'14 papers and submitted to PRST-AB will be reviewed through the normal refereeing procedure. If accepted for publication, they will be published as regular PRST-AB articles. Publication will be timely; articles will be published as soon as they are ready, without waiting for other papers presented at the conference to be published. In addition, a special IPAC'14 Table of Contents will be created at the PRST-AB website with links to the published papers. It will be updated each time a paper related to IPAC'14 is published.



PRST-AB web site with announcement of IPAC'14 Special Edition

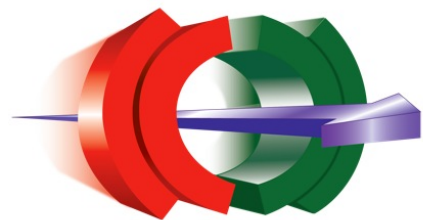
IPAC 2014 Conference Edition

Physical Review Special Topics - Accelerators and Beams is publishing a conference edition for the [2014 International Particle Accelerator Conference \(IPAC 2014\)](#) held in Dresden, Germany, 15-20 June 2014.


Physical Review Special Topics - Accelerators and Beams (PRST-AB) is an all-electronic journal published by the American Physical Society and available at <http://journals.aps.org/prstab/>. The all-electronic nature of PRST-AB allows conference editions while maintaining thorough peer review and timely publication. In addition, it provides global access and archiving beyond that ordinarily offered by conference proceedings. The PRST-AB template available through links on the PRST-AB home page is the required format for submissions.

A complete collection of papers submitted to the 2014 International Particle Accelerator Conference will be posted on [JACoW](#) without any further review. The Local Organizing Committee recommends that all contributors to the conference consider submitting an extended version of their IPAC 2014 paper to PRST-AB. Authors should submit to PRST-AB using the procedure found through links on the PRST-AB home page. Papers will be peer-reviewed through the normal refereeing procedure, and if accepted for publication they will be published as regular PRST-AB articles and as part of the IPAC 2014 Conference Edition.

Publication will be timely; articles will be published as soon as they are ready with no delay waiting for other papers presented at the conference. In addition, the Table of Contents and the Workshop web site will be updated each time a paper is published.



PRST-AB links with JACoW, EPS-AG & APS DPB



Joint Accelerator Conferences Website

The Conference Proceedings

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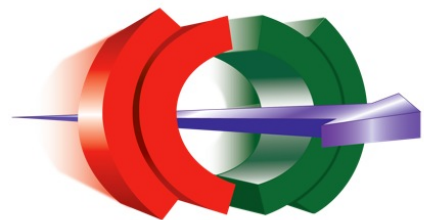
In general, each Conference retains the Copyright to their proceedings but may be taken from this site, provided that the source is acknowledged. The conference papers have been processed using Adobe Acrobat software required.

Search Engine

This form is based on the [FAST](#) Search Engine (introduced 19 March 2000) to limit the search to the appropriate areas. Full Boolean searches are possible and once the search has been submitted, the results will be displayed in a table form. In order to eliminate unwanted papers in the search result, users are strongly advised to use the 'filter' option which requires that the particular string is found. The [help](#) page gives more details and examples for the formulation of search strings.

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electronic features

PRST-AB is an all electronic journal
we could implement or use or encourage
more electronic features

examples:

- “kaleidoscope” [image collection with links] **DONE**
- movies [in articles + movie collection with links to corresponding paper] *rarely used!*,
see *Optics Express*

published by The Optical Society of America and available at
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- editor & author videos from *BioMedCentral*

PRST-AB Introduces *Kaleidoscope* (March 13, 2009)

Starting March 2009, the PRST-AB web site features selected "cover" images extracted from recently published papers. Selections are based on aesthetics; in making our selection we look for attractive and interesting graphics. If a choice must be made between several promising contenders, we will also consider the contents both of the image and of its associated paper. The image will be identified by the title of the paper; there will also be a link to the article. The image itself may be slightly modified. Kaleidoscope images, one per issue, rotate on the main web site and may be browsed in an archive. The PRST-AB image archive already contains some interesting PRST-AB images which have caught our attention during the last couple of months.



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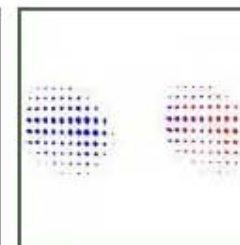
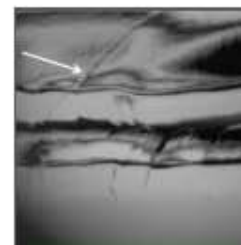
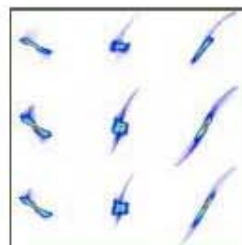
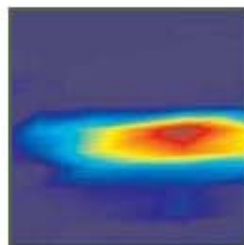
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PRST-AB Kaleidoscope Images

Many *Physical Review Special Topics - Accelerator and Beams* articles contain images that not only convey important scientific information, but also are visually attractive. The editors will showcase a selection of images from each issue in order to promote interest in the aesthetics of physics. Images are selected solely for their artistic appeal. Images from papers published recently appear on our main page and are also added to this archive. Click on each thumbnail to see the full image, caption, and link to the paper.



Partners

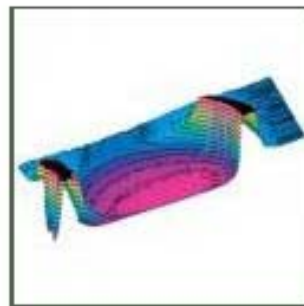
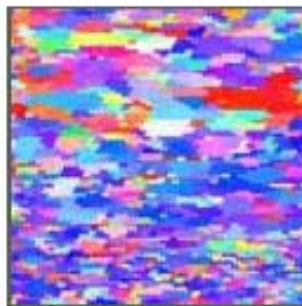
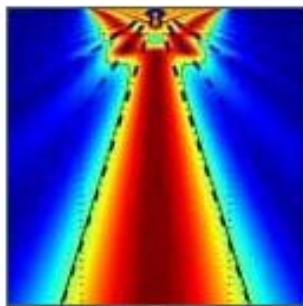
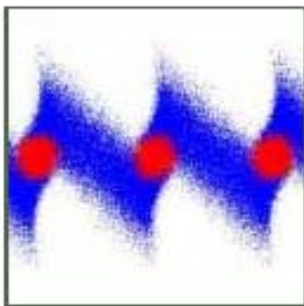
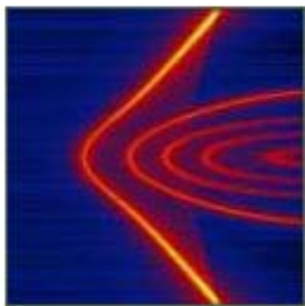
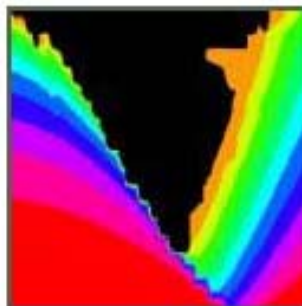
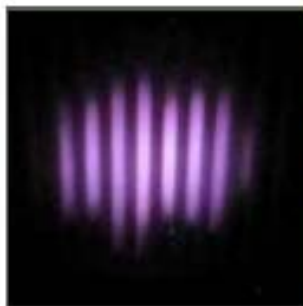
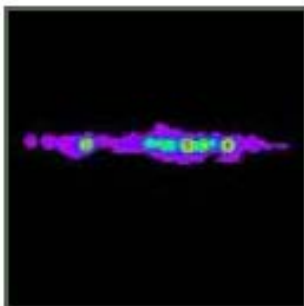
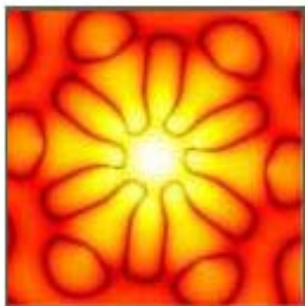
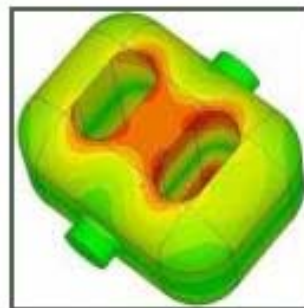
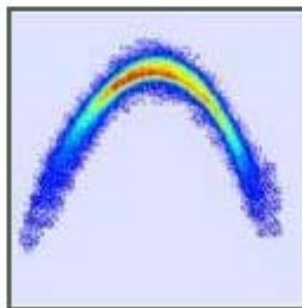
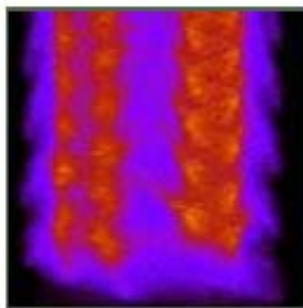
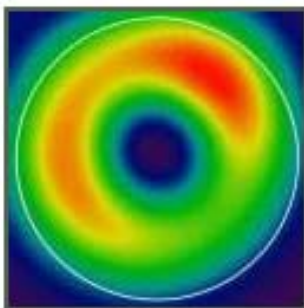
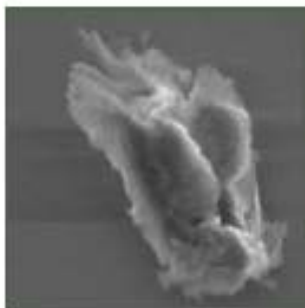
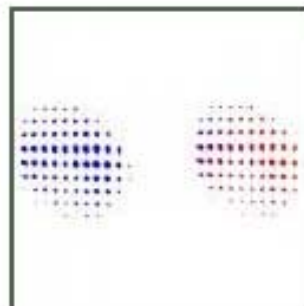
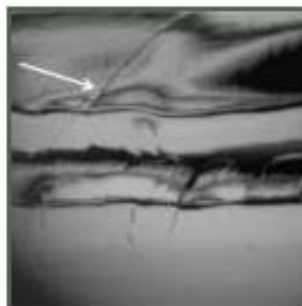
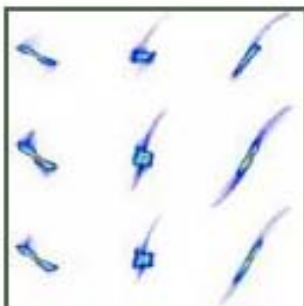
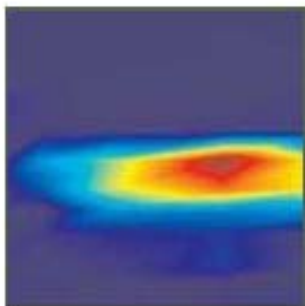
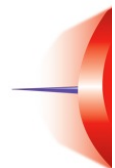
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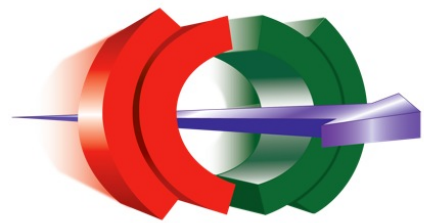
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a few conclusions

- *PRST-AB* is today's primary journal for accelerator physics & technology; several other journals also publish accelerator-related articles
- *PRST-AB*'s impact factor (IF) higher than for NIM and Rev. Sci. Instr., but lower than for journals covering many different disciplines
- one goal: raising the IF – this requires changes of culture & attitude (appearing to be in progress)
- fate of “special editions” under discussion
- *PRST-AB* serves and follows the community

“If your IF is above 10, then you enter here. If it’s lower, well... ”



thank you for your attention!