

Die Infrastrukturkrise in der Wissenschaft aus der Forscherperspektive

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<http://brembs.net>



„Vertrauen Sie Wissenschaftlern?“

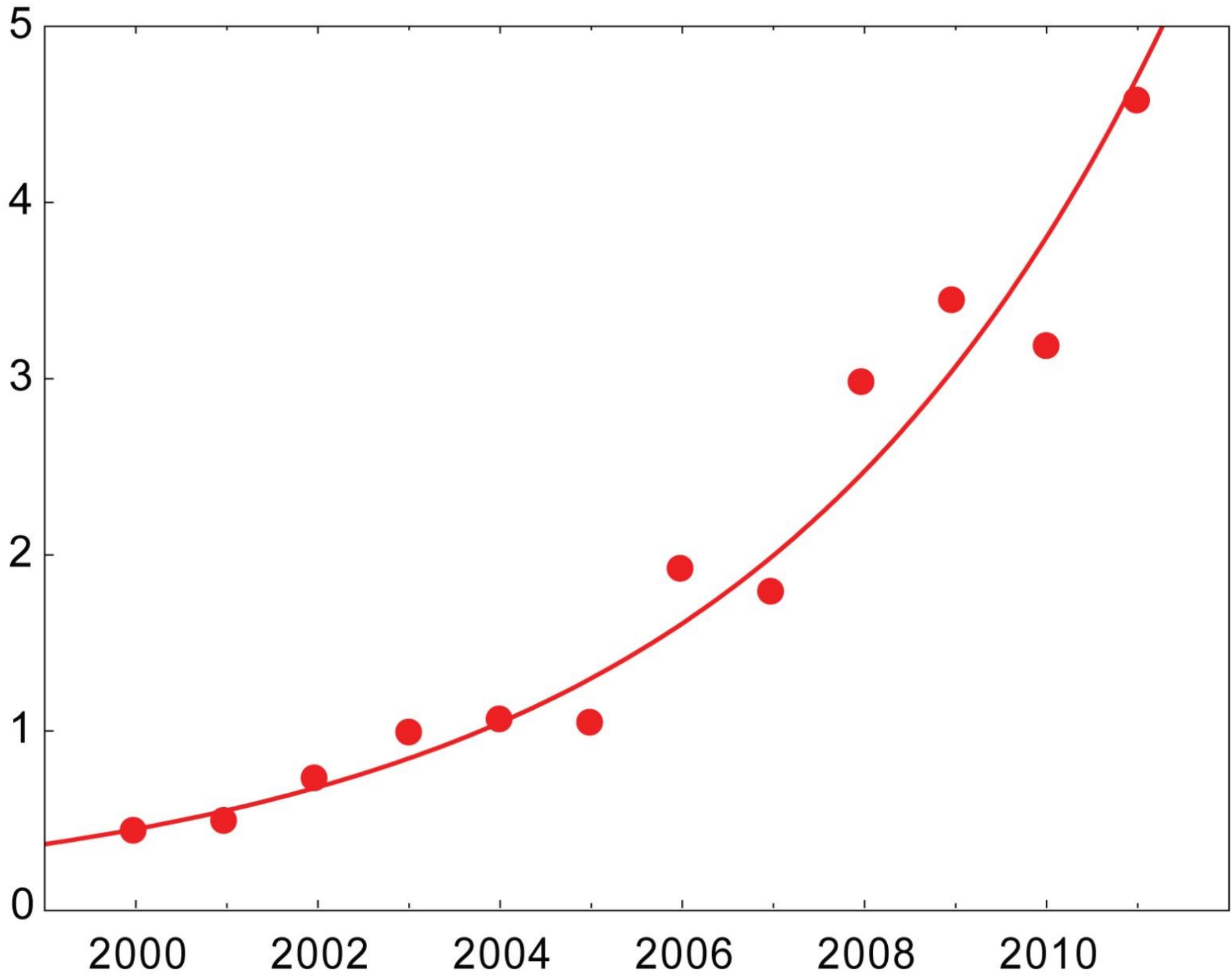


„Wem kann man eigentlich heute noch trauen?“

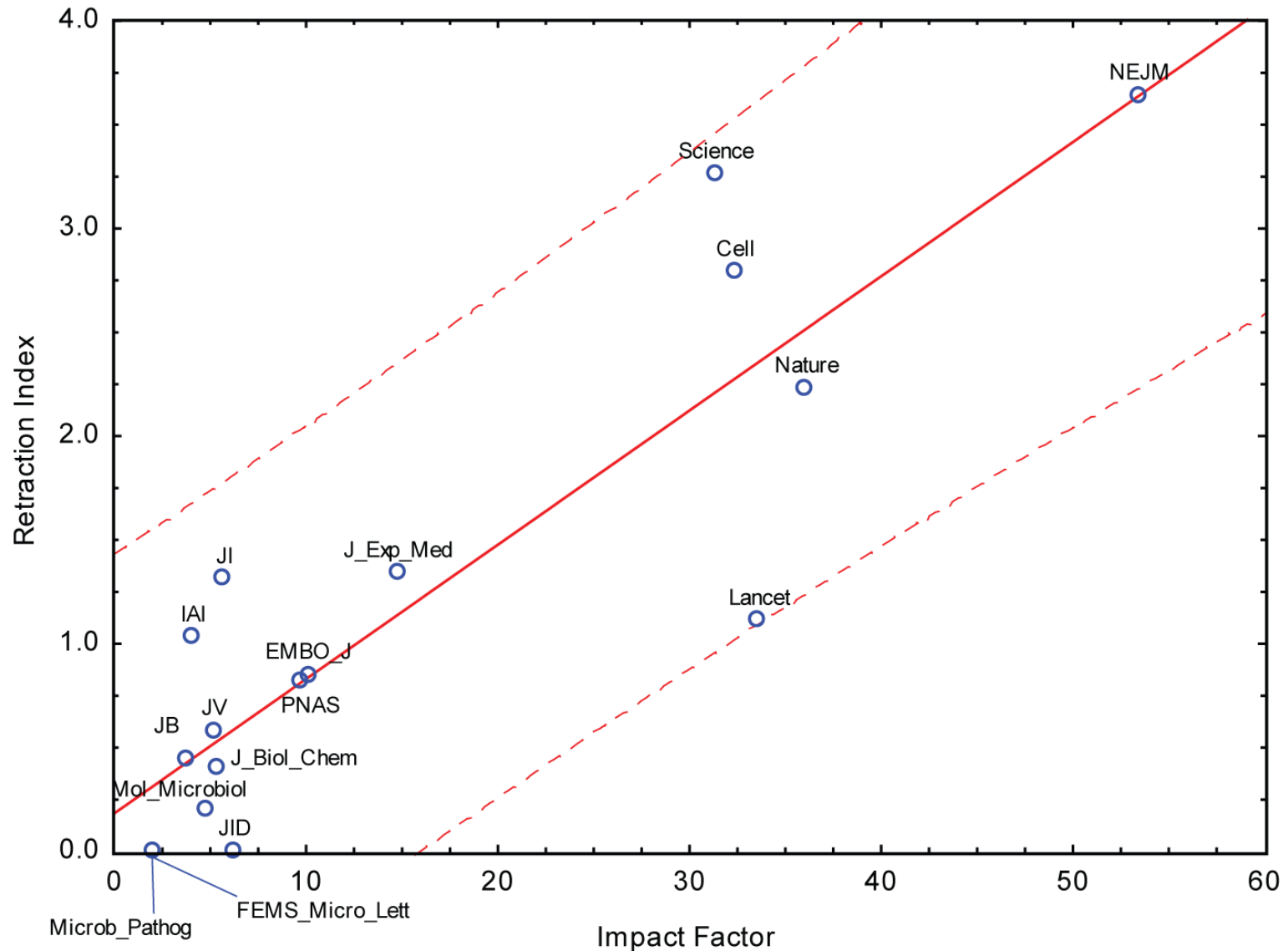


„Politikern? Finanzexperten? Immobilienmaklern?“

Retractions / 10k publications

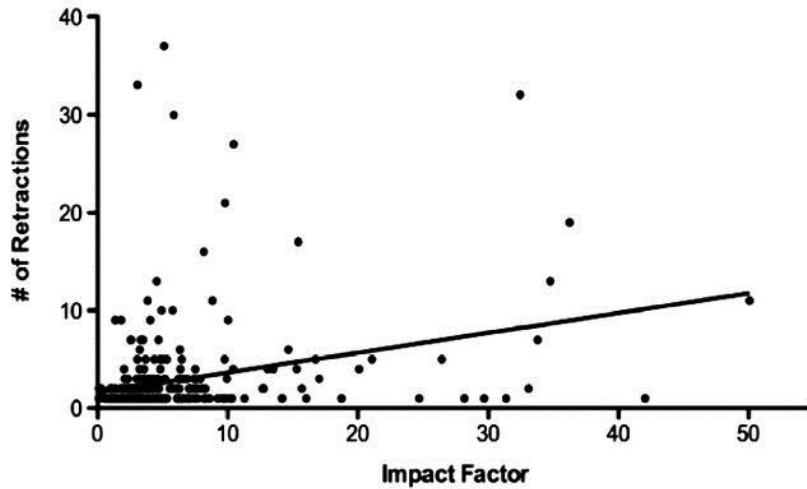


Journalhierarchie und Retraktionen

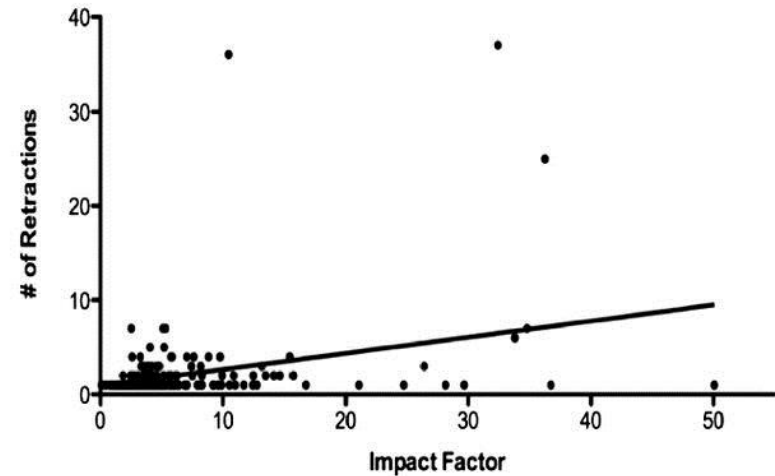


Journalhierarchie und Retraktionen

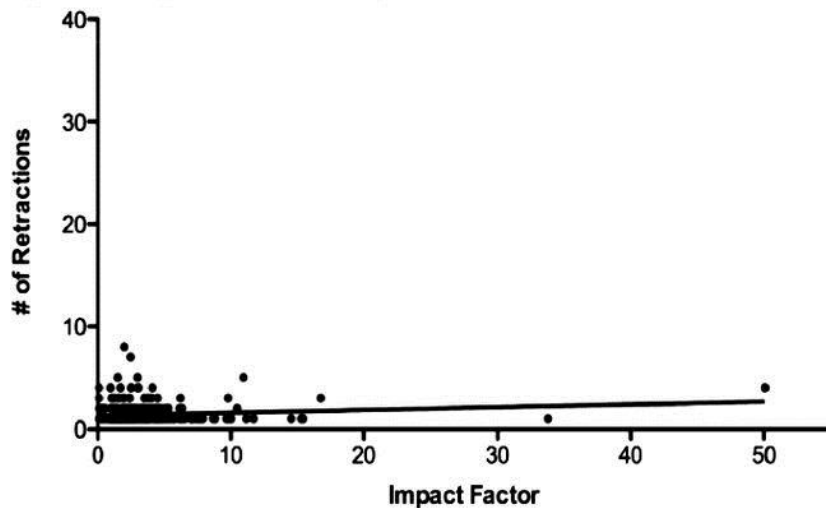
A Fraud or Suspected Fraud



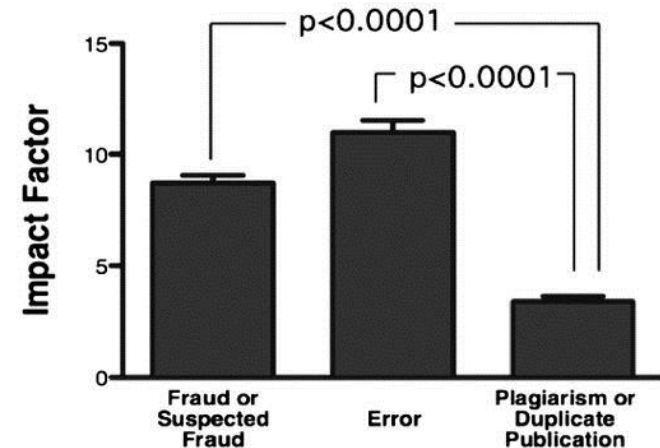
B Error



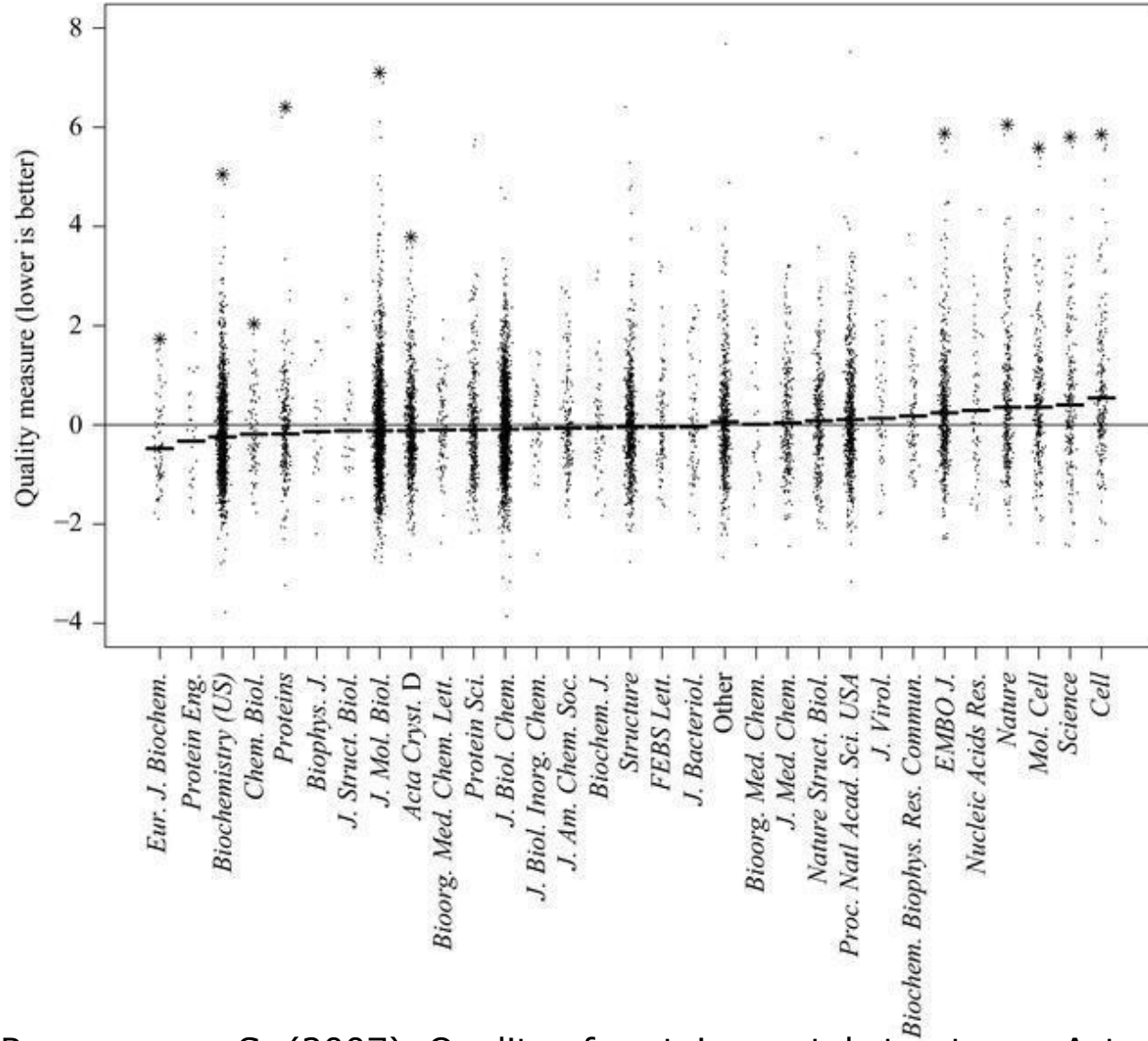
C Plagiarism or Duplicate Publication



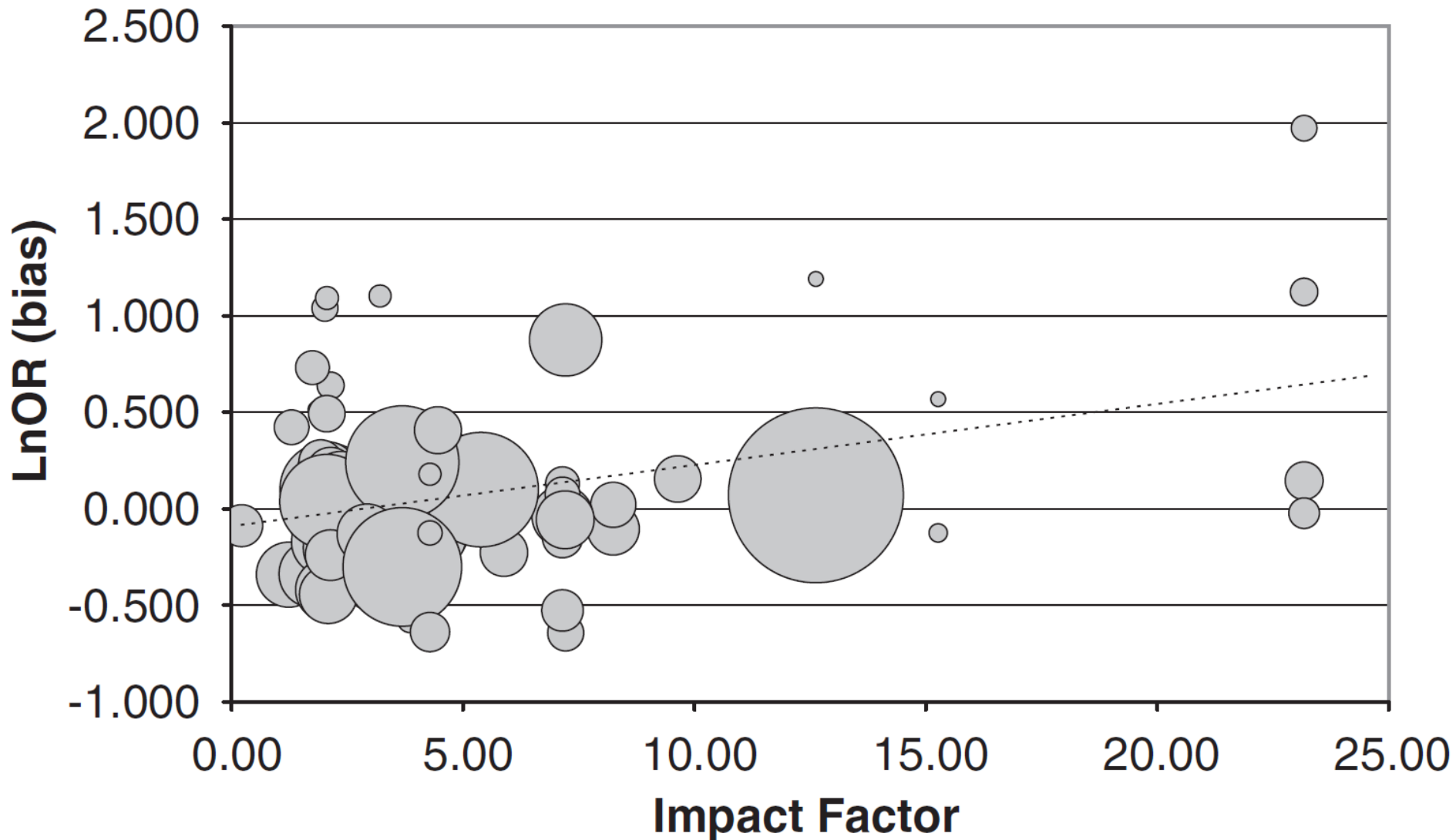
D Mean IF by Cause



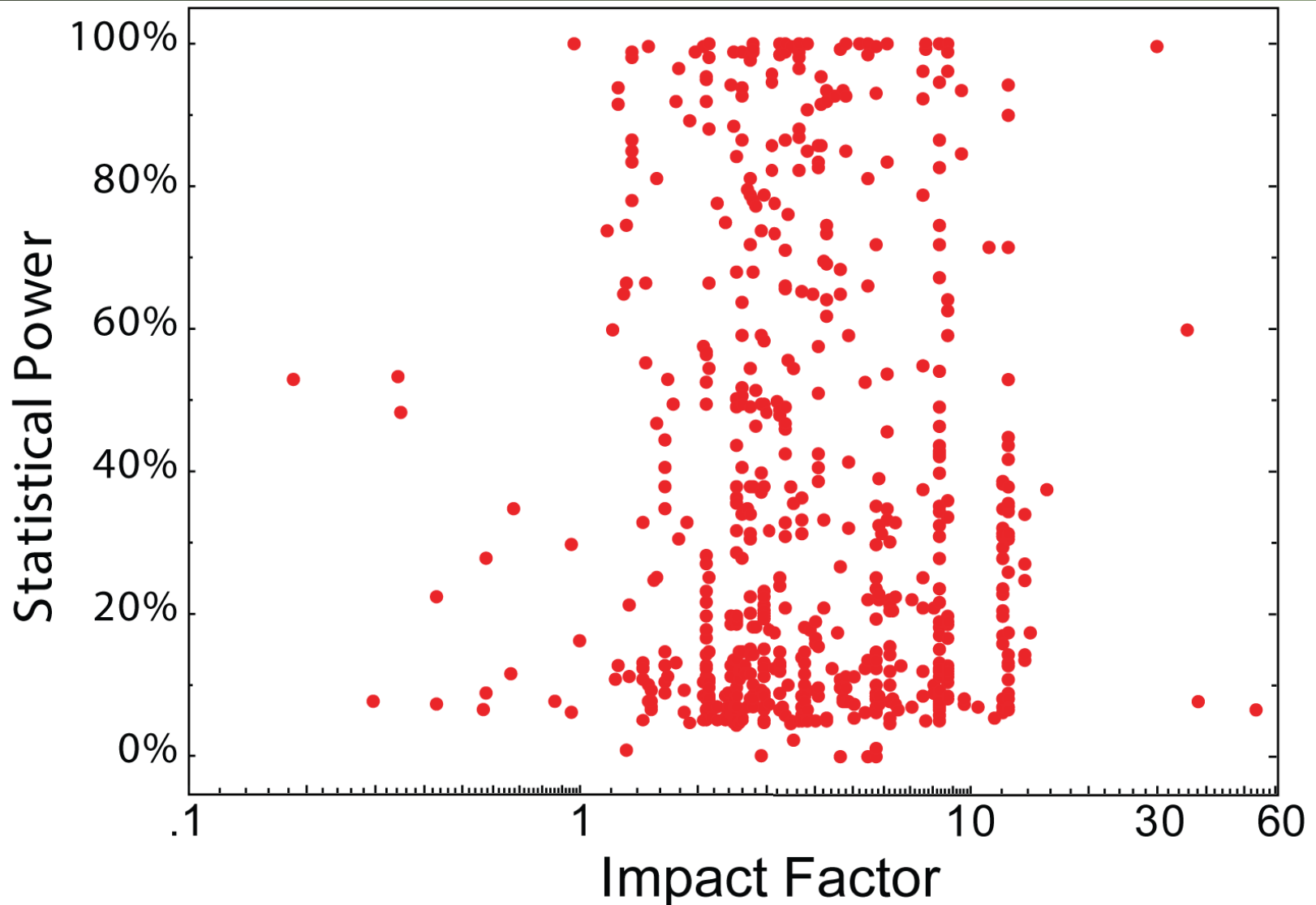
Journalhierarchie und Qualität



Journalhierarchie und ‚Qualität‘

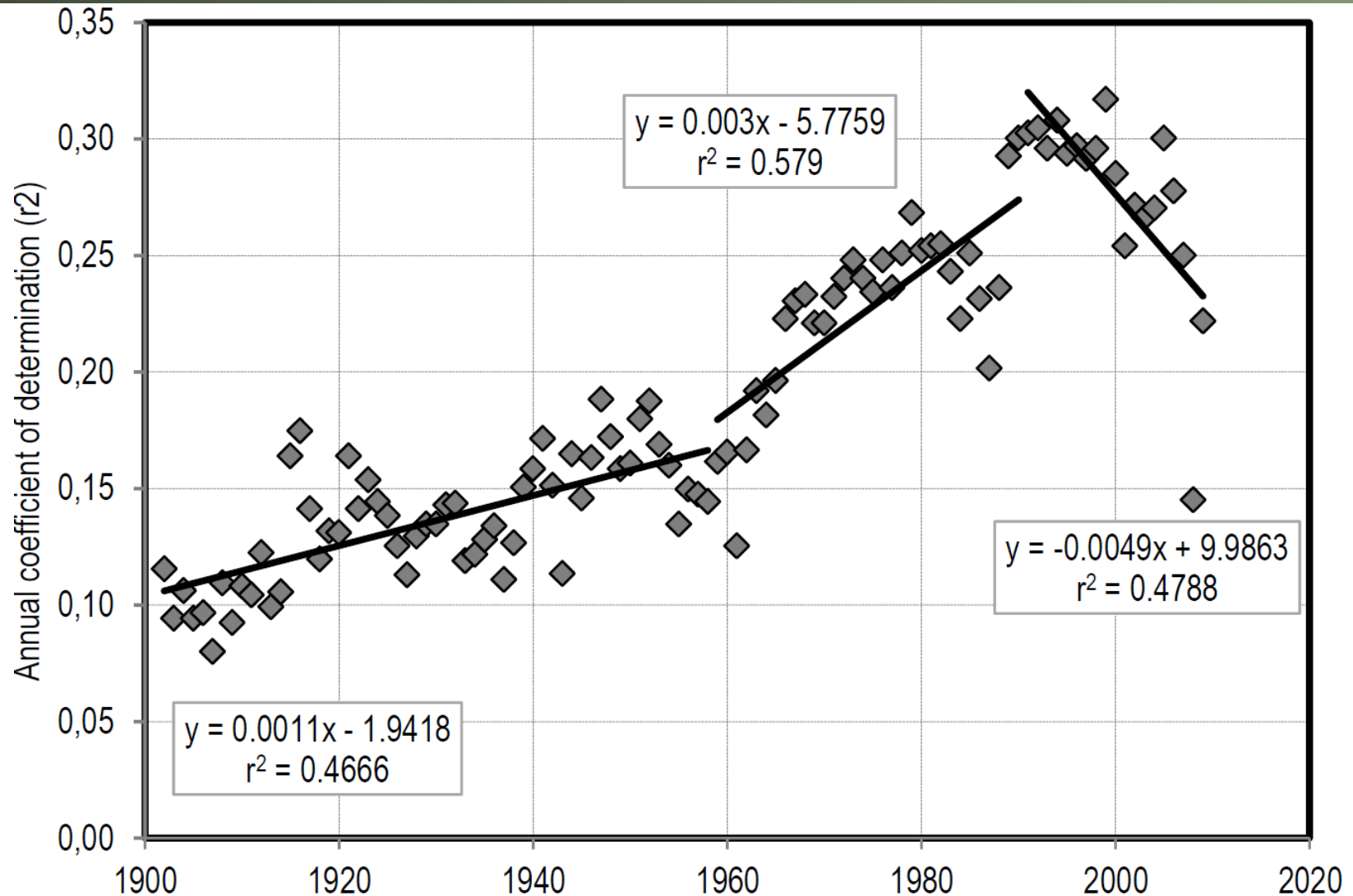


Journalhierarchie und Methodologie



Brembs, B., Button, K., & Munafò, M. (2013). Deep impact: unintended consequences of journal rank. *Frontiers in Human Neuroscience*, 7. doi:10.3389/fnhum.2013.00291

Journalhierarchie und Zitationen



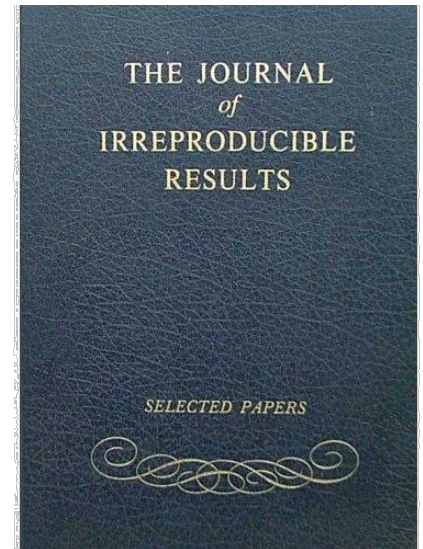
The weakening relationship between the Impact Factor and papers' citations in the digital age (2012): [George A. Lozano](#), [Vincent Lariviere](#), [Yves Gingras](#) arXiv:1205.4328

Hauptprobleme des IF

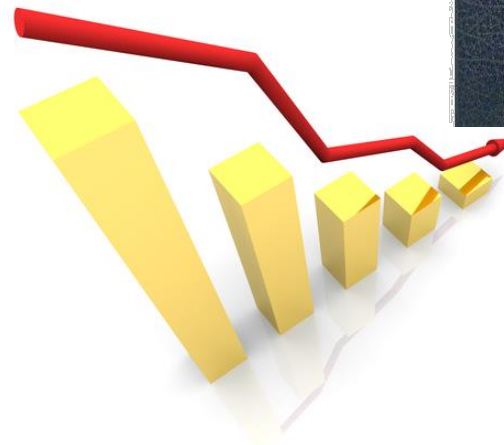
- Verhandelbar



- Unreproduzierbar



- Mathematisch falsch



Verhandelbar

- PLoS Medicine, IF 2-11 (8.4)
(The *PLoS Medicine* Editors (2006) The Impact Factor Game. *PLoS Med* 3(6): e291.
<http://www.plosmedicine.org/article/info:doi/10.1371%2Fjournal.pmed.0030291>)
- Current Biology IF von 7 auf 11 in 2003
 - 2001 gekauft von Cell Press (Elsevier)...

 Reed Elsevier



 THOMSON REUTERS

Journal: CURRENT BIOLOGY

Mark	Journal Title	ISSN	Total Cites	Impact Factor	Immediacy Index	Citable Items	Cited Half-life	Citing Half-life
<input type="checkbox"/>	CURR BIOL	0960-9822	20020	7.007	2.713	341	3.5	3.7

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CITED JOURNAL DATA CITING JOURNAL DATA IMPACT FACTOR TREND

Journal Impact Factor

Cites in 2002 to items published in: 2001 = 3314 **Number of items published in: 2001 = 528**
 2000 = 3917 2000 = 504
 Sum: 7231 Sum: 1032

Calculation: $\frac{\text{Cites to recent items}}{\text{Number of recent items}} = \frac{7231}{1032} = 7.007$

Journal: CURRENT BIOLOGY

Mark	Journal Title	ISSN	Total Cites	Impact Factor	Immediacy Index	Citable Items	Cited Half-life	Citing Half-life
<input type="checkbox"/>	CURR BIOL	0960-9822	22589	11.910	2.683	331	3.8	4.0

[Cited Journal](#) [Citing Journal](#) [Source Data](#) [Journal Self Cites](#)

CITED JOURNAL DATA CITING JOURNAL DATA IMPACT FACTOR TREND RELATED JOURNALS

Journal Impact Factor

Cites in 2003 to items published in: 2002 = 3628 **Number of items published in: 2002 = 334**
 2001 = 3923 **2001 = 300**
 Sum: 7551 Sum: 634

Calculation: $\frac{\text{Cites to recent items}}{\text{Number of recent items}} = \frac{7551}{634} = 11.910$

Nicht reproduzierbar

- Rockefeller University Press kaufte Zitationsdaten von Thomson Reuters
- Bis zu 19% Abweichung von publizierten IFs
- Zweiter Datensatz auch nicht korrekt

Rossner M, van Epps H, Hill E (2007): Show me the data. The Journal of Cell Biology, Vol. 179, No. 6, 1091-1092

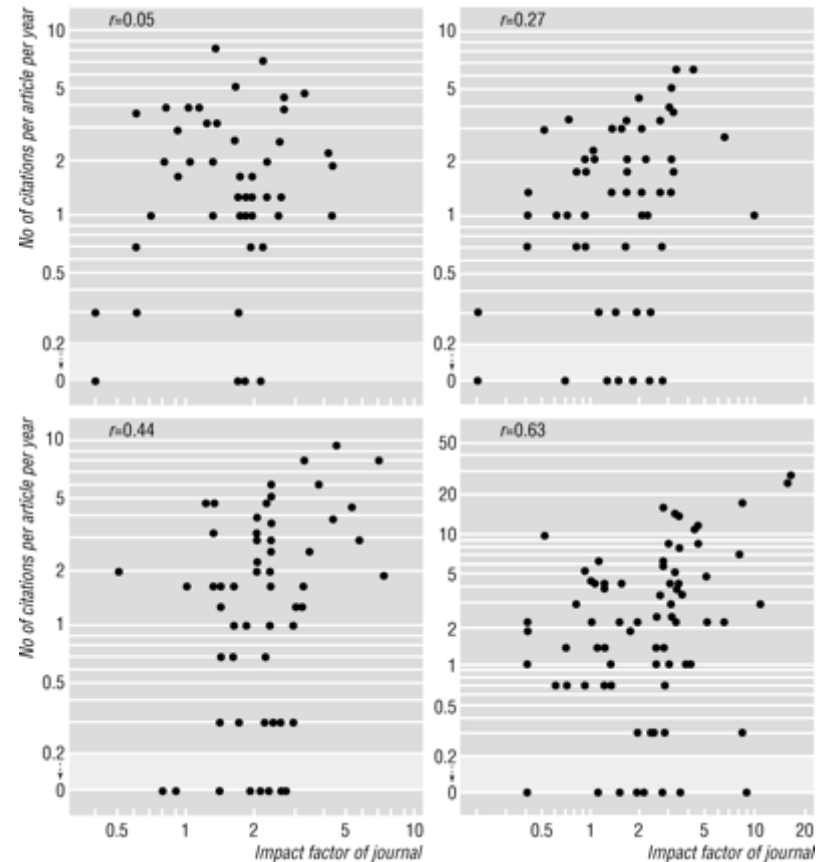
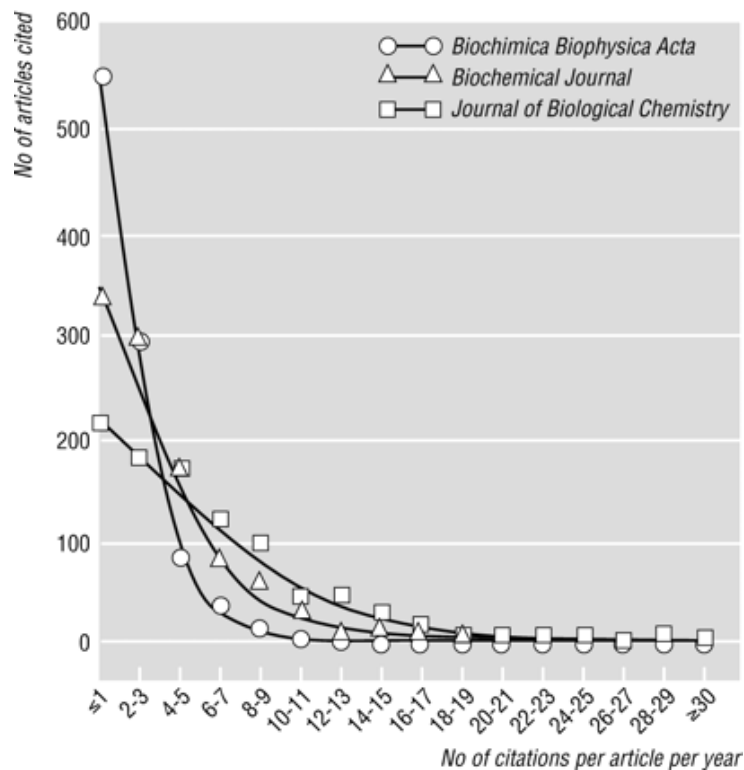
<http://jcb.rupress.org/cgi/content/full/179/6/1091>



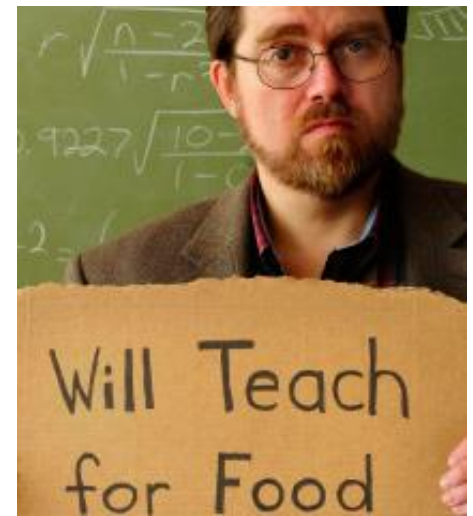
"My question is: Are we making an impact?"

Mathematisch falsch

- Linkschiefe Verteilungen
- Schwache Korrelation von IF mit individuellen Zitationen



WISSEN SCHAFFEN



Wissenschaftler produzieren
Publikationen, Daten und
Software

KRISE I



Dysfunktionale Literatur

Literatur



...es ist wie das
Internet anno 1995!

- Schwer zugänglich
- Keine globale Suche
- Keine Hyperlinks
- Keine Daten-visualisierung
- Keine Text-Normen
- (Fast) keine Statistik
- Kein text/data-mining
- Keine effektive Sortier-, Filter- oder Entdeckungs-Funktionalität
- Keine wissenschaftl. Bewertung
- Keine soziale Vernetzung
- etc.

KRISE II



Wissenschaftliche Daten in Gefahr

Gestern: Gerhard Schneider

*„An Universitäten wird mit Daten recht sorglos
umgegangen“*

nature

International weekly journal of science

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NATURE | NEWS

Databases fight funding cuts

Online tools are becoming ever more important to biology, but financial support is unstable.

Monya Baker

05 September 2012



Swiss Institute of
Bioinformatics



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SWISS-PROT should have been 10 years old in July 1996, but it may disappear on June 30, 1996

Due to funding problems, SWISS-PROT as well as PROSITE, and the ENZYME nomenclature databases will disappear on June 30, 1996 if no solution is found before that date. The ExPASy WWW server and all services associated with it will also shut down. The distribution of the SWISS-2DPAGE database will also be discontinued. Other external databases, WWW services and software packages that depend on SWISS-PROT,



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TAIR Funding Updates and Discussion Forum

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TAIR launches new corporate sponsorship program (7/23/2010)

Dear TAIR user community,

To help us through the **current funding crisis** we recently established a new TAIR corporate sponsorship program. We feel that this approach is preferable to implementing a subscription requirement for the private sector because it will allow us to keep TAIR open and free of login requirements, facilitating the free exploration of data by all scientists. Two companies (Dow AgroSciences and Syngenta) and one research organization (Gregor Mendel Institute) have already become TAIR sponsors. More information can be found on our [sponsorship page](#).

TAIR Funding Crisis (10/16/2009)

Dear TAIR user community,

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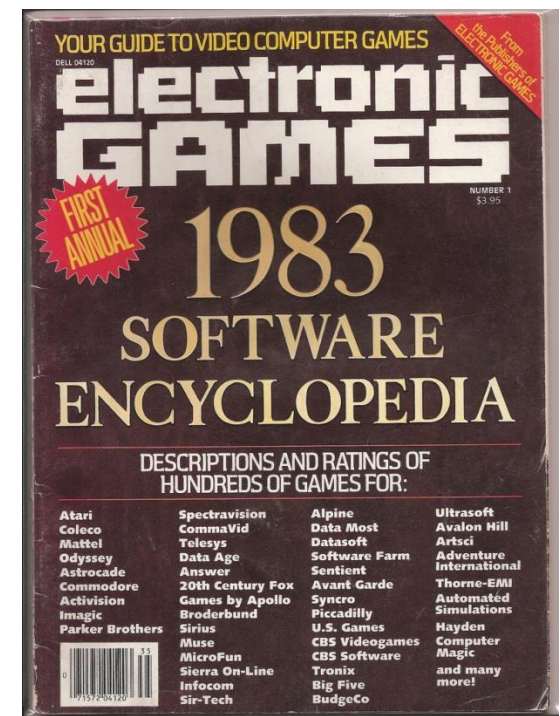
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[TAIR Presentations \(ppt\)](#)

KRISE III



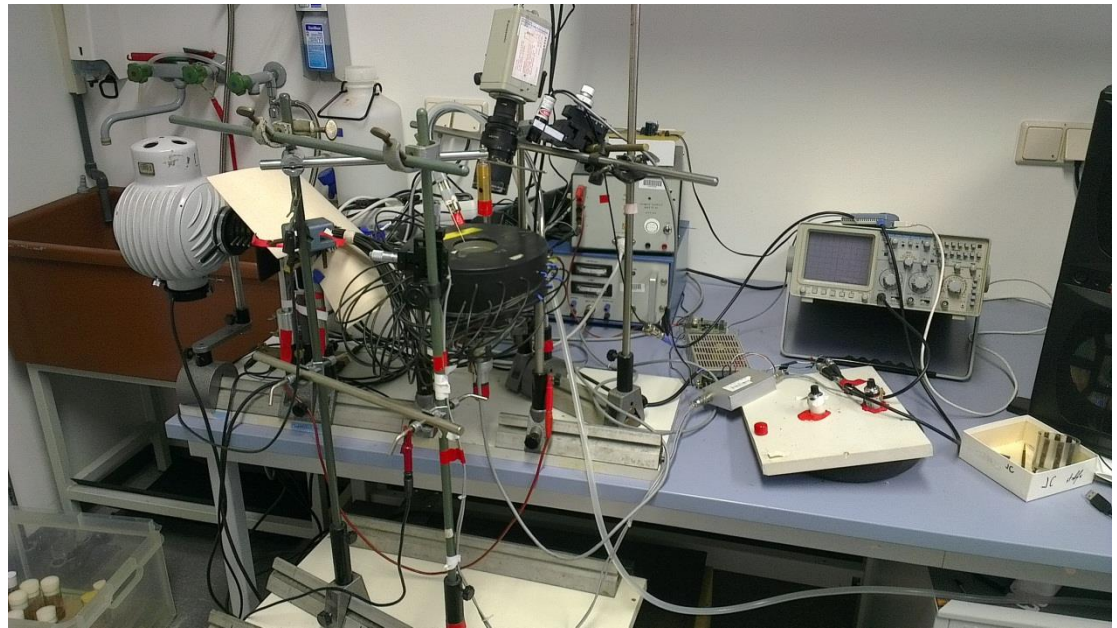
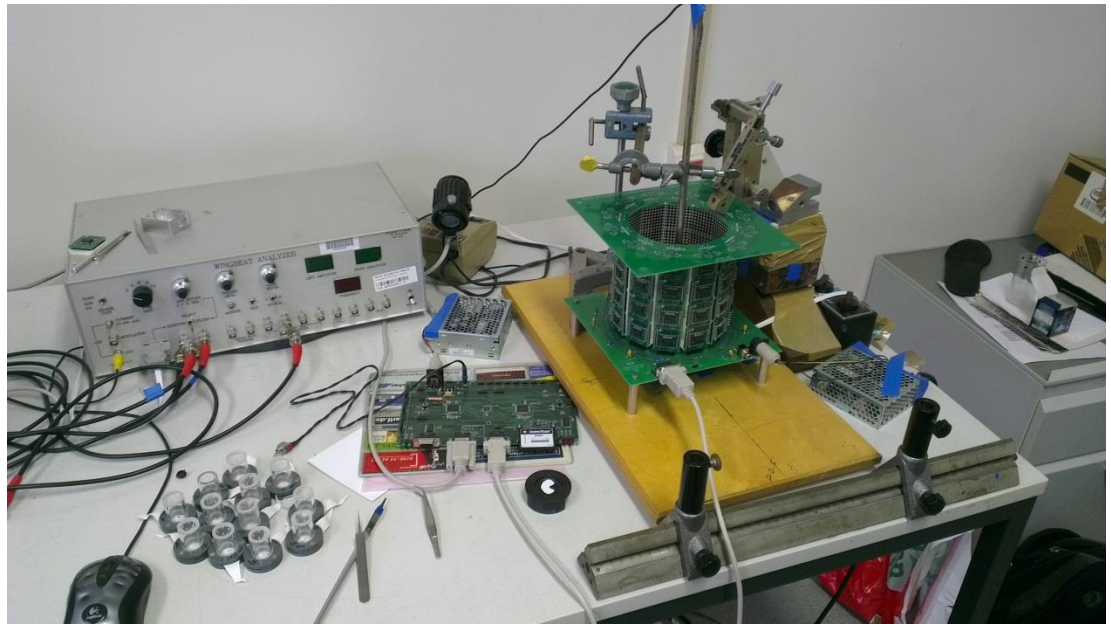
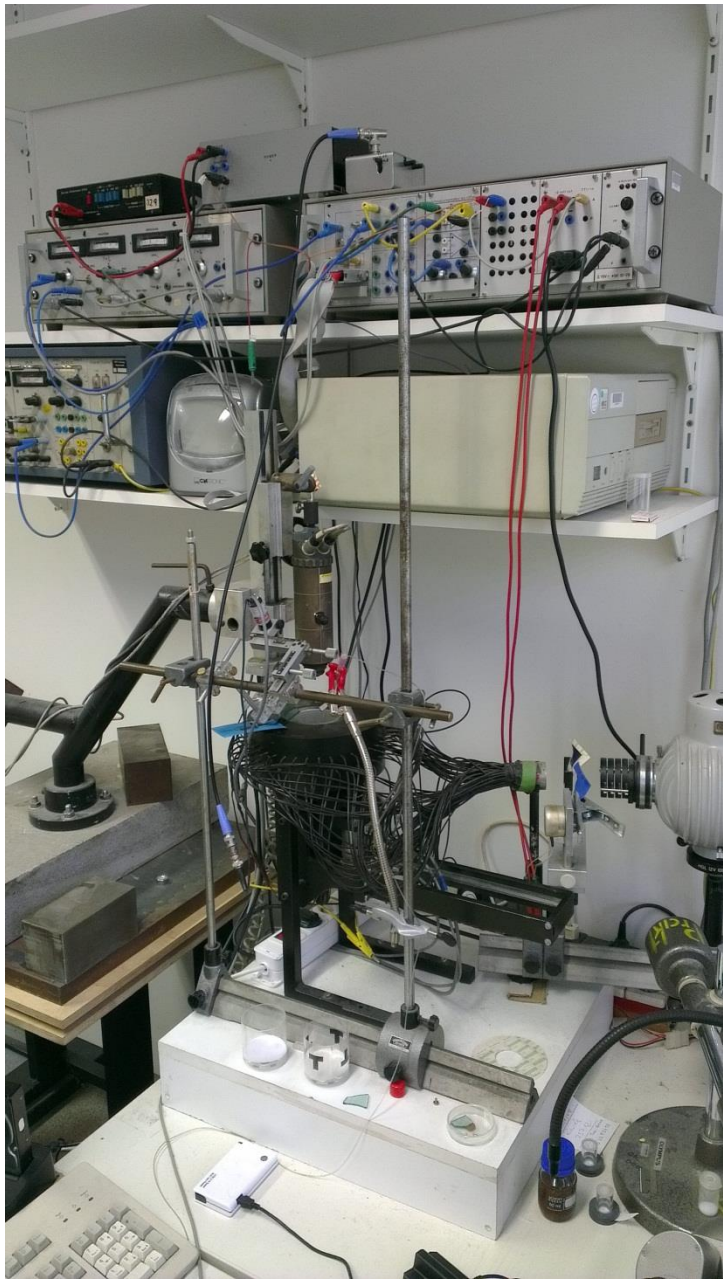
Inexistente Software-Archive

Gestern: Gerhard Schneider

„Wem gehört PowerPoint?“

Gestern: Gerhard Schneider

„Proprietäre Auswertungssoftware nutzt nur der eigenen Karriere“



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Science 2 December 2011:
Vol. 334 no. 6060 pp. 1226-1227
DOI: 10.1126/science.1213847

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PERSPECTIVE

Reproducible Research in Computational Science

Roger D. Peng

Author Affiliations

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ABSTRACT

Computational science has led to exciting new developments, but the nature of the work has exposed limitations in our ability to evaluate published findings. Reproducibility has the potential to serve as a minimum standard for judging scientific claims when full independent replication of a study is not possible.

The case for open computer programs

Darrel C. Ince, Leslie Hatton & John Graham-Cumming

[Affiliations](#) | [Contributions](#) | [Corresponding author](#)

Nature **482**, 485–488 (23 February 2012) | doi:10.1038/nature10836

Received 09 May 2011 | Accepted 05 January 2012 | Published online 22 February 2012

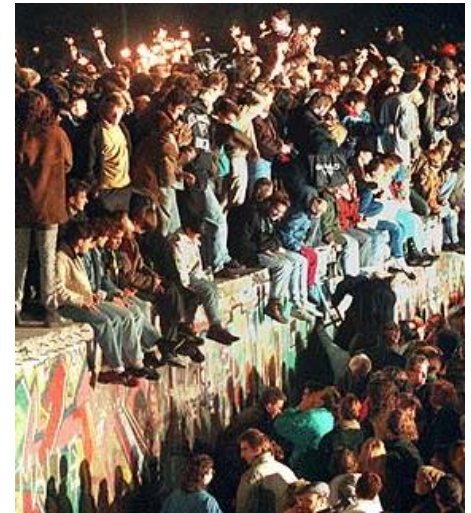
Scientific communication relies on evidence that cannot be entirely included in publications, but the rise of computational science has added a new layer of inaccessibility. Although it is now accepted that data should be made available on request, the current regulations regarding the availability of software are inconsistent. We argue that, with some exceptions, anything less than the release of source programs is intolerable for results that depend on computation. The vagaries of hardware, software and natural language will always ensure that exact reproducibility remains uncertain, but withholding code increases the chances that efforts to reproduce results will fail.

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- Kein Archiv für Publikationen
- Kein Archiv für Software
- Kein Archiv für Daten

WAS TUN?



**Wie können wir die
Bezahlmauern einreissen?**

Hilfe von Aussen

- Förderermantate mit Kontrolle: OA, Software und Daten
- Aufhebung gesetzlicher Barrieren (z.B.: Copyright)



→ Aber: teuer, kann Widerspruch auslösen



Selbsthilfe durch institutionelle Infrastruktur-Reform

- Journalhierarchie abschaffen
- Überlegene Alternative schaffen

⇒ Freie Wahlmöglichkeit, preiswert, Funktionalität, etc.



UTOPIA 8.535 km

A white directional road sign with a black border and a black arrow pointing to the left. The sign is mounted on a silver metal post. The background is a clear blue sky, and the bottom of the image shows a dark green field of crops.

1. Internationale Koordination



2. Software Entwickler einstellen



Überlegener Zugang

- Open Access Publikationen sammeln
 - Zentral zugänglich machen
 - Nicht nur Repositorien
 - Alles!
- Enstandene Datenbank einbinden
 - PubMed
 - Google Scholar
- Lücken schliessen: [Request eprint](#)

3. Abonnements kündigen



Überlegene Alternative

- Globale Suche und Zugriff für gesamte Literatur, Software und Daten
- Intelligente Sortier-, Filter- und Entdeckungs-Funktionalität
- Wissenschaftliches Reputationsystem
- Plattform für kooperatives Schreiben und Ein-Klick-Einreichen
- Um Größenordnungen preiswerter:
US\$90/paper (z.B. SciELO) vs. US\$4.000/paper (Abonnement)