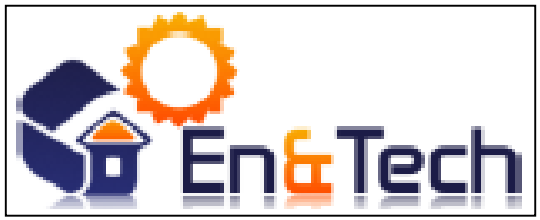
I Pinocchi della Scienza: Storie di Illusioni e Frodi nella Ricerca Scientifica

Stefano Ossicini

DISMI - Università di Modena e Reggio Emilia, Italia

Tecnopolo En&Tech – Reggio Emilia

CNR-Istituto di Nanoscienze – Modena



APS: Definizione di Scienza

La scienza è un'impresa sistematica volta a costruire la conoscenza sul mondo e a organizzare questo sapere in leggi verificabili e in teorie. Il successo e la credibilità della scienza sono ancorate alla buona volontà dello scienziato di:

(1) esporre le proprie idee e i propri risultati alla verifica indipendente e alla replica da parte degli altri scienziati, il che richiede un completo e aperto scambio di dati, di procedure e di materiali;

(2) abbandonare o modificare le conclusioni accettate dopo un confronto con evidenze sperimentali più complete e affidabili.

L'aderenza a questi principi fornisce un meccanismo per l'autocorrezione, meccanismo che è il fondamento della credibilità della scienza.

APS Statement on Integrity in Physics - 1987

"The physics community has traditionally enjoyed a well-deserved reputation for maintenance of high ethical standards and integrity in its scientific activities. Indeed, the American Physical Society is one of the few professional societies which has not felt the need for a formal code of ethics."

"Per quanto io ne sappia non ci sono mai stati casi importanti di falsificazione dei dati in fisica" **Steven Weinberg** in *"Dreams of a final theory"* New York 1992

2002

BREAKTHROUGH OF THE YEAR

Breakdown of the Year: Physics Fraud

The past year witnessed more than just high points. The physics community suffered two stunning setbacks when separate investigations concluded that a physicist at Bell Laboratories in Murray Hill, New Jersey, and another at Lawrence Berkeley National Laboratory (LBNL) in California committed fraud.

Premio «Enrico Fermi»
Divulgazione Scientifica 2013
-
Finalista 1° Premio Divulgazione Scientifica Ass. It. Libro 2013

Radiazioni a volontà: Raggi N, Raggi N_1, Raggi Fisiologici, Raggi Pesanti

Buona fino all'ultima goccia. Robert Andrew Millikan e la carica dell'elettrone.

La resistibile ascesa di Emil Rupp. Albert Einstein, Emil Rupp e la natura della luce

Che fine ha fatto Emil Rupp? P. A. M. Dirac, Nevill Mott, Emil Rupp e la natura dell'elettrone

Acque pericolose

Lo scienziato e il mago

Woodstock, fusione fredda e dintorni: quando la scienza diventa spettacolo

Sinistra e destra nella vita

Falsi nuovi elementi: dall'alabamina all'elemento 118, una storia infinita

Il sole in una bolla

Ascesa e caduta di una stella del nanouniverso

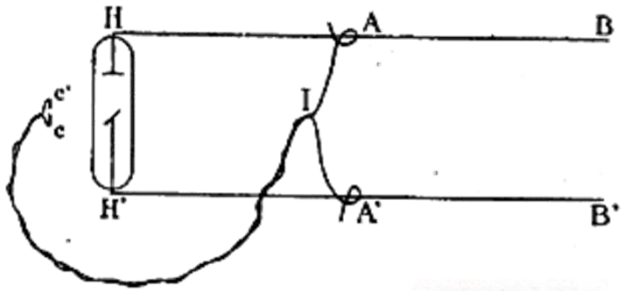


FIG. 1.

Nascita dei raggi N

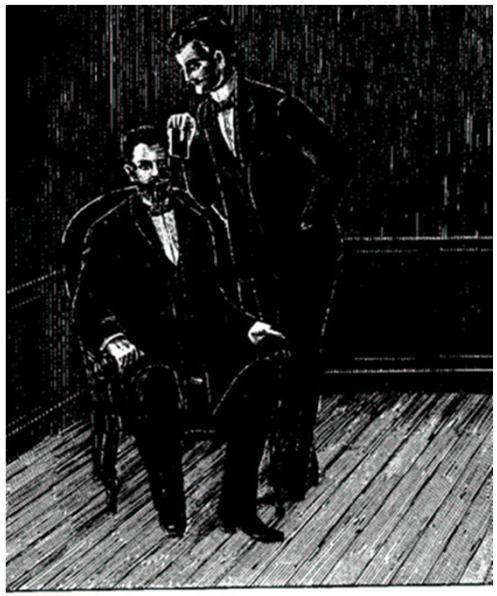
N come Nancy

1903

PHYSIQUE. — *Sur une nouvelle espèce de lumière.* Note de M. R. BLONDLOT.

L'accresciuta luminosità della scintilla veniva considerata un indicatore dell'esistenza di questi nuovi raggi.

PHYSIQUE BIOLOGIQUE. — *Quelques points de technique pour l'examen des organes au moyen des rayons* N. *Premiers résultats relatifs à l'étude du cerveau.* Note de M. ANDRÉ BROCA, présentée par M. d'Arsonval.



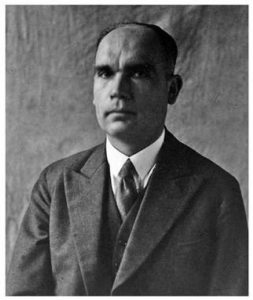
Localisation de la parole. Recherche du centre de Broca.

PHYSIQUE. — *Action des anesthésiques sur les sources de rayons* N$_1$. Note de M. JULIEN MEYER, présentée par M. Mascart.

Utilizzo in anestesia

Morte apparente

1903-1906, circa 120 ricercatori hanno pubblicato più di 300 articoli sull'origine e le caratteristiche di questa radiazione



Emil Rupp (1898-1979)

LOUIS DE BROGLIE

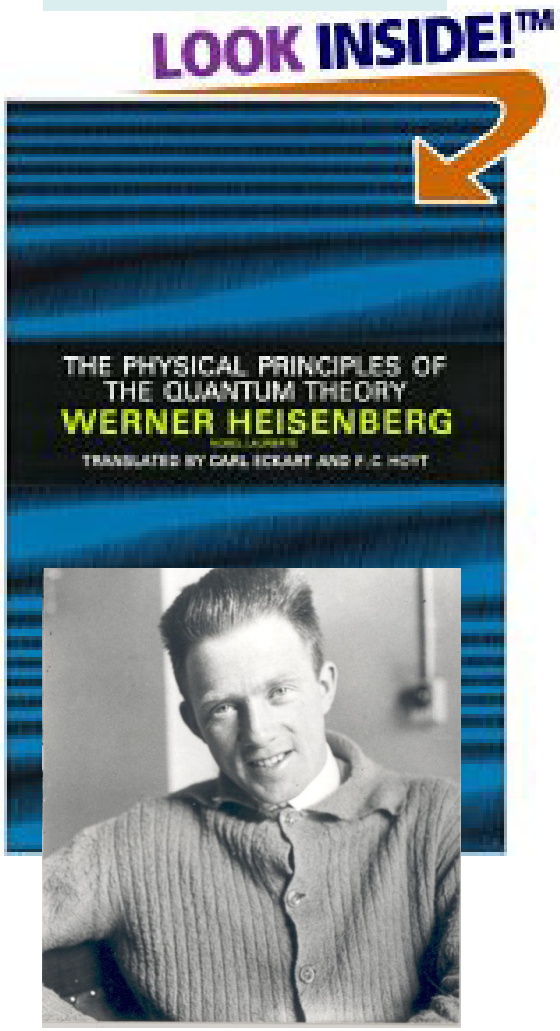
The wave nature of the electron

Nobel Lecture, December 12, 1929

Now, experiment which is the final judge of theories, has shown that the phenomenon of electron diffraction by crystals actually exists and that it obeys exactly and quantitatively the laws of wave mechanics. To Davisson and Germer, working at the Bell Laboratories in New York, falls the honour of being the first to observe the phenomenon by a method analogous to that of von Laue for X-rays. By duplicating the same experiments but replacing the single crystal by a crystalline powder in conformity with the method introduced for X-rays by Debye and Scherrer, Professor G. P. Thomson of Aberdeen, son of the famous Cambridge physicist Sir J. J. Thomson, found the same phenomena. Then Rupp in Germany, Kikuchi in Japan, Ponte in France and others reproduced them, varying the experimental conditions. Today, the existence of the phenomenon is beyond doubt and the slight difficulties of interpretation posed by the first experiments of Davisson and Germer appear to have been satisfactorily solved.

Rupp has even managed to bring about electron diffraction in a particularly striking form. You will be familiar with what are termed diffraction gratings in optics: these are glass or metal surfaces, plane or slightly curved, on which have been mechanically traced equidistant lines, the spacing between which is comparable in order of magnitude with the wavelengths of light waves. The waves diffracted by these lines interfere, and the inter-

1930



b) Diffraction of matter waves (*Davisson and Germer*;[1] *Thomson*,[2] *Rupp*[3]).—After the conception of β-rays as streams of particles had remained unchallenged for more than fifteen years, another series of experiments was per-

§ 3. THE EXPERIMENT OF EINSTEIN AND RUPP[1]

Another paradox was thought to be presented by the following experiment: An atom (canal ray) is made to pass a slit S of width d with the velocity v, and emits light while doing so. This light is analyzed by a spectroscope behind S. Since the light can reach the spectroscope only during the time $t=d/v$, the train of waves to be analyzed has a finite length, and the spectroscope will show it as a line whose width corresponds to a frequency range

$$\Delta\nu=\frac{1}{t}=\frac{v}{d}.$$

On the other hand, the corpuscular theory seems to prohibit such a broadening. The atom emits monochromatic radiation, the energy of each particle of which is $h\nu$, and the diaphragm (because of its great mass) will not be able to change the energy of the particles.

The fallacy lies in neglecting the Doppler effect and the diffraction of the light at the slit. Those photons which reach P from the atom are not all emitted perpendicularly

[1] A. Einstein, *Berliner Berichte*, p. 334, 1926; A. Rupp, *ibid.*, p. 341, 1926.

Announcement

E. Rupp, ZS. f. Phys. 95, 801 (1935)

As the result of an illness, about which the medical opinion below* gives information, I find myself obliged to retract the following publications from the year 1934:

Polarization of electrons by free atoms, ZS. f. Phys. **88**, 242, 1934.

Polarization of electrons in magnetic fields, ZS. f. Phys. **90**, 166, 1934.

Investigations with artificially produced positrons, ZS. f. Phys **92**, 485, 1934.

Investigations with artificially produced positrons, ZS. f. techn. Phys. **15**, 575, 1934.

Measurement of high voltages by means of electron scattering, Ann. d. Phys. **20**, 594, 1934.

There exists no cause to retract earlier works either wholly or partially.

E. Rupp[1]

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* From the opinion of the doctor, Dr. E. Freiherr von Gebsattel, Fürstenberg (Meckl.): "The investigation showed that Dr. Rupp had been ill since 1932 with an emotional weakness (Psychasthenia) linked to psychological semiconsciousness. During this illness, and under its influence, he has, without being himself conscious of it, published papers on physical phenomena (positrons, atomic disintegrations) that have the character of 'fictions.' It is a matter of the intrusion of dreamlike states into the area of his scientific activity. His complete recovery will certainly ensue."

Nature 338 (1988)

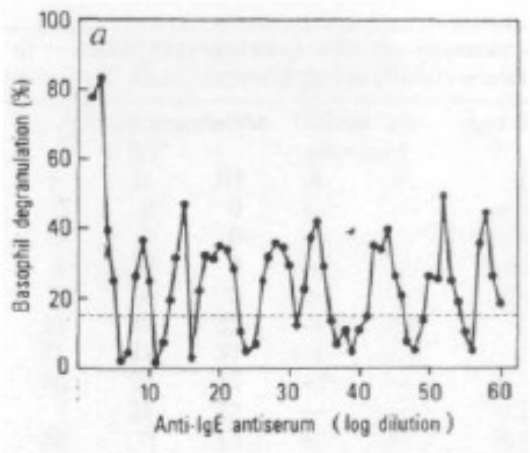
Quando credere all'incredibile 787

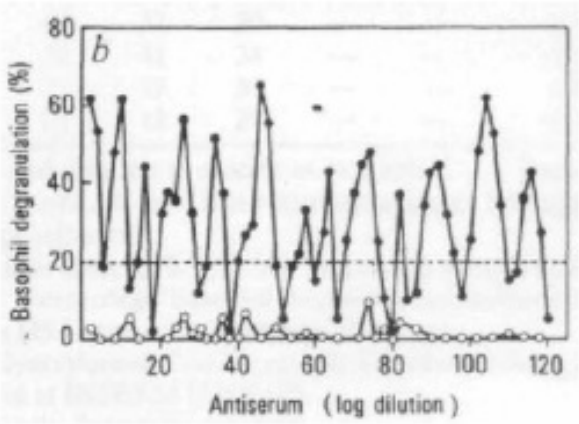
Un articolo di questa settimana descrive osservazioni per le quali non ci sono attualmente basi fisiche. Ci sono buone ragioni per essere prudenti e per sospendere momentaneamente il giudizio.

Human basophil degranulation triggered by very dilute antiserum against IgE 816-818

E. DAVENAS, F. BEAUVAIS, J. AMARA, M. OBERBAUM,
B. ROBINZON, A. MIADONNAI, A. TEDESCHI, B. POMERANZ,
P. FORTNER, P. BELON, J. SAINTE-LAUDY,
B. POITEVIN & J. BENVENISTE

Homeopathy
Boiron Industry





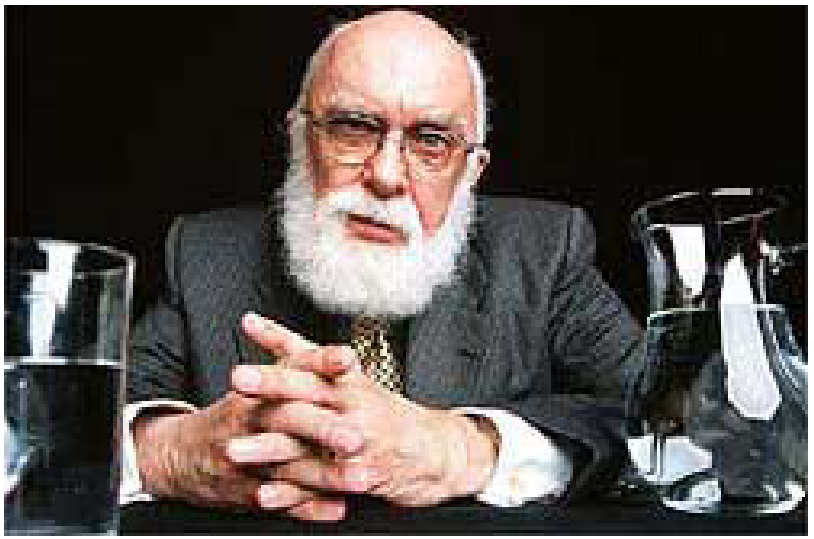
I punti pieni (●) rappresentano i dati sperimentali relativi all'esperimento condotto con antisiero anti-IgE, mentre i punti vuoti (○) si riferiscono all'esperimento analogo condotto con antisiero anti-IgG. La linea orizzontale tratteggiata nei due grafici, in corrispondenza di quella che, nell'articolo, viene chiamata "percentuale significativa di degranulazione" (circa 15% nel primo grafico e 20% nel secondo), è molto importante, perché indica il livello minimo per cui, secondo i ricercatori, si può considerare significativamente avvenuta la degranulazione. Torneremo più avanti sui metodi statistici utilizzati in quel laboratorio.

Nature 339 (1988)

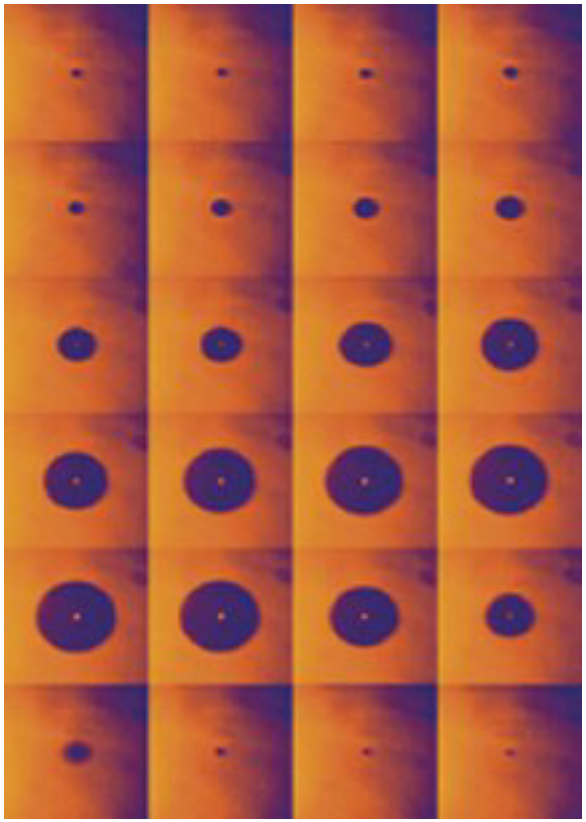
Esperimento sull“Alta-diluizione" una delusione 287

JOHN MADDOX, JAMES RANDI & WALTER W. STEWART

Una visita di un team deciso da Nature dimostra che Il report del Dr J. Benveniste e colleghi era basato su basi non sostanziali.



1989 - March 23 - Cold Fusion Press Conference at University of Utah on YouTube



24 March 1989 New York Times *"Nuclear Power Gain Reported But Experts Express Doubts. If true, the method would be a gigantic step in creating energy"*

Two scientists from England and the USA, M. Fleischmann and S. Pons at University of Utah successfully caused nuclear fusion in a test tube by means of electrolysis.

Pons and Fleischmann, fearing they were about to be scooped by a competitor named Steven Jones from nearby Brigham Young University, and with the encouragement of their own administration, held a press conference on March 23, 1989 at the University of Utah, to announce what seemed to be the scientific discovery of the century.

Nuclear fusion, producing usable amounts of heat, could be induced to take place on a table-top by electrolyzing heavy water, using electrodes made of palladium and platinum, two precious metals.

Fleischmann, M., S. Pons, and M. Hawkins, *Electrochemically induced nuclear fusion of deuterium.* J. Electroanal. Chem., 1989. **261**: p. 301 and errata in Vol. 263.

Preliminary note

Electrochemically induced nuclear fusion of deuterium

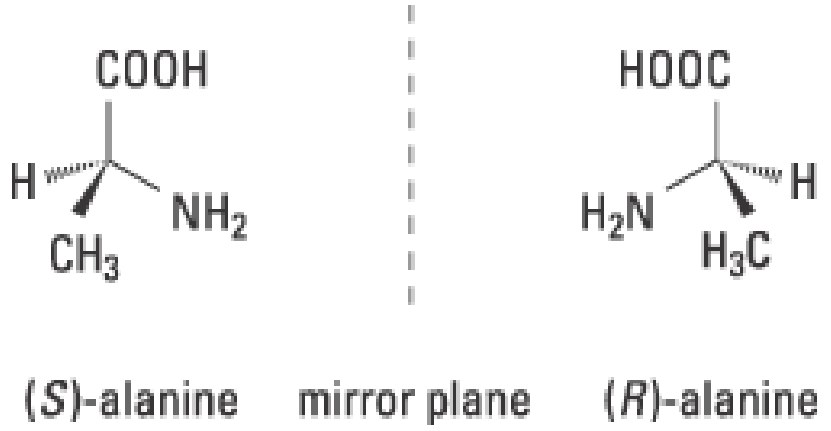
Martin Fleischmann
Department of Chemistry, The University, Southampton, Hants. S09 5NH (Great Britain)
Stanley Pons *
Department of Chemistry, University of Utah, Salt Lake City, UT 84112 (U.S.A.)
(Received 13 March 1989; in revised form 22 March 1989)

Stanley Pons and Martin Fleischmann

range 10^5-10^6% (even in the absence of spin polarisation) with enthalpy releases in excess of 10 kW cm^{-3}. **We have to report here that under the conditions of the last experiment, even using D_2O alone, a substantial portion of the cathode fused (melting point 1544°C), part of it vapourised, and the cell and contents and a part of the fume cupboard housing the experiment were destroyed.**

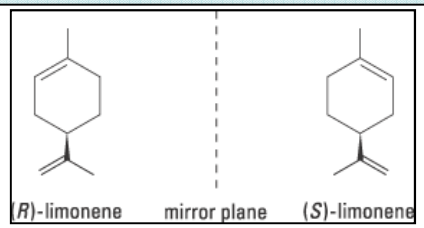
Cambi nella lista degli autori, nel numero degli esprimenti, negli ordini di grandezza, nelle figure..

Il termine *chirale* viene da cheir, greco che vuole dire mano. Le nostre mani sono chirali. La mano destra è un'immagine della mano sinistra, Chirali sono la maggior parte delle molecole della vita. Se, per esempio, studiamo il comune aminoacido alanina, vediamo che esiste in due forme: (S)-alanina e (R)-alanina, immagini specchiate.



La Natura è chirale

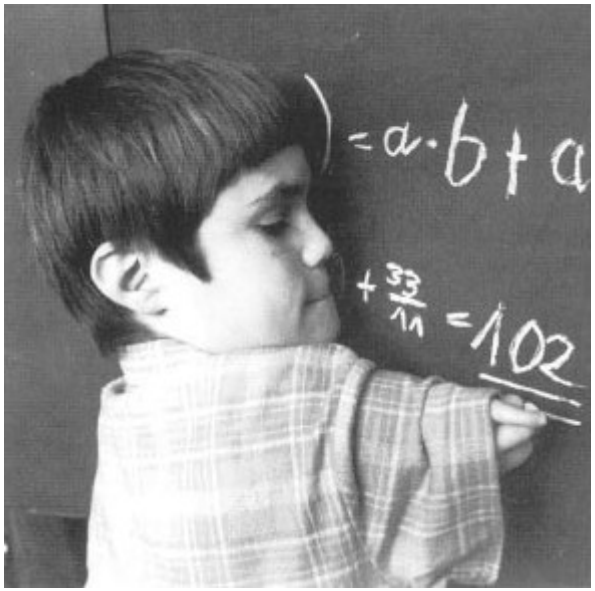
Si potrebbe pensare che le molecole esistano in forme chirali egualmente comuni. Non è così, la natura utilizza una delle due forme di enantiomeri. La chimica della vita è omochirale, si basa essenzialmente su aminoacidi L (sinistri) e zuccheri D (destri). L'abilità delle molecole biologiche nel riconoscere le due forme è vitale per i sistemi viventi. Questo è molto importante perché due enantiomeri di una molecola chirale hanno spesso effetti totalmente diversi.



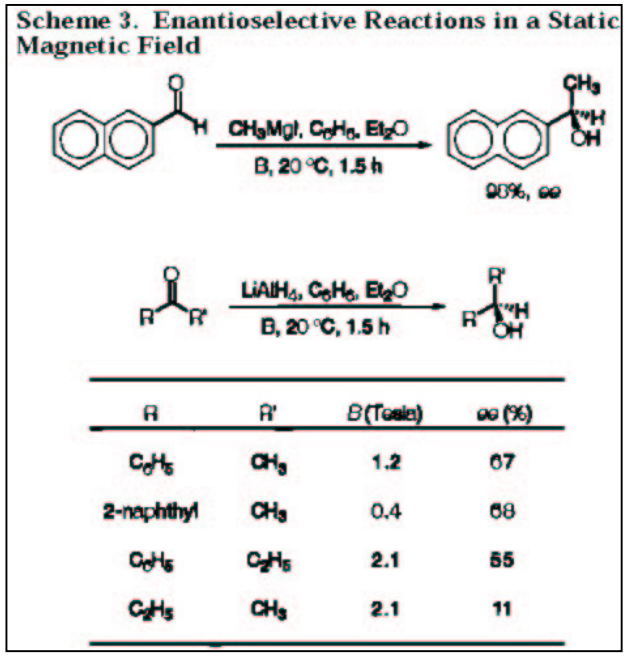
I recettori del naso distinguono tra l'odore del limone e quello dell'arancio.

Farmaci, talidomide

Molti farmaci sono costituiti da molecole chirali. Occorre fare molta attenzione nella produzione. Negli anni 50/60 un farmaco la talidomide veniva usato per curare l'insonnia e le nausee nelle donne in gravidanza.
Una delle due forme operava con questo fine, l'altra provocava terribili malformazioni al feto. Ci furono migliaia (circa 12000) di casi di nati con mancanza di arti superiori o inferiori.



Un esempio spettacoloso di reazione enantioselettiva in un campo magnetico statico fu riportato da Zadel e colleghi. Eccessi Enantiomerici varianti dall' 11% al 98% furono trovati per un campo magnetico statico di 0.43 ± 2.1 T nelle reazioni di aldeidi aromatiche e chetoni. Era imprevedibile comunque predire quale forma predominasse nell'esperimento. Intrigati dai livelli alti di selettività e dalla semplicità della sintesi asimmetrica, molti gruppi provarono a riprodurre i risultati. Tutti i tentativi fallirono. L'esperimento era "truccato", misture già selezionate venivano "seminate" intenzionalmente.



Scheme 3. Enantioselective Reactions in a Static Magnetic Field

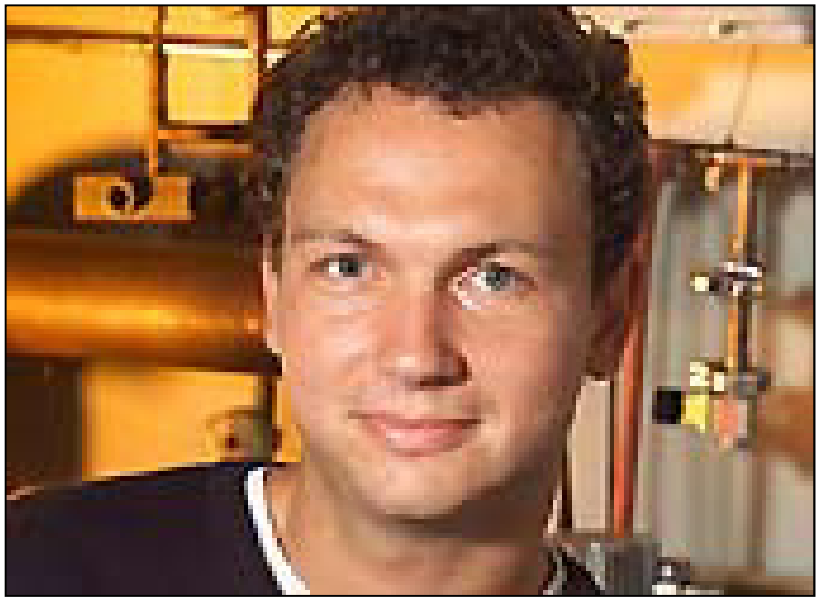
R	R'	B (Tesla)	ee (%)
C_6H_5	CH_3	1.2	67
2-naphthyl	CH_3	0.4	68
C_6H_5	C_2H_5	2.1	55
C_2H_5	CH_3	2.1	11

Zadel G, Eisenbraun C, Wolff G-J & Breitmaier E (1994) Enantioselektive Synthese im statischen Magnetfeld. Angew. Chem. *106*, 460-463.

Keine enantioselektive Reaktion im statischen Magnetfeld,

kein Doktortitel / Meistgelesene Artikel 2003

10 years to take a final decision!



J. H. Schön (1970)

PhD 1997 Kostanz (D)

(Celli Solari (Si, III-V))

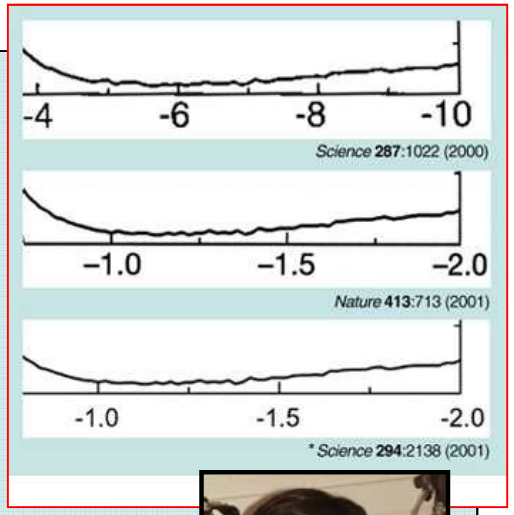
1998-2002 Bell Labs.

Capo: B. Batlogg

2001 45publ-1x8days!

91 Pub. → 2495 citazioni

- >100 Labs worked on Schön results
- Thents of Ph.D. thesis
- Schön streaking results not reproduced!
- "Almost too good to be true" 2001 October (Schön answers)
- April 2002 researchers at Bell contact Lydia Sohn (Scully) at Princeton University. Identical curves.
- Sohn contacts Paul McEuen (Mulder) at Cornell University. Figure's duplications.
- Sohn e McEuen take contact with Schön, Batlogg ,Bell Labs.
- Schön admits some confusion with the figure submissions
- May 2002 Bell set up an Investigation Committee



Resistivity of Polythiophene

Nature **410,** 189 (2001)

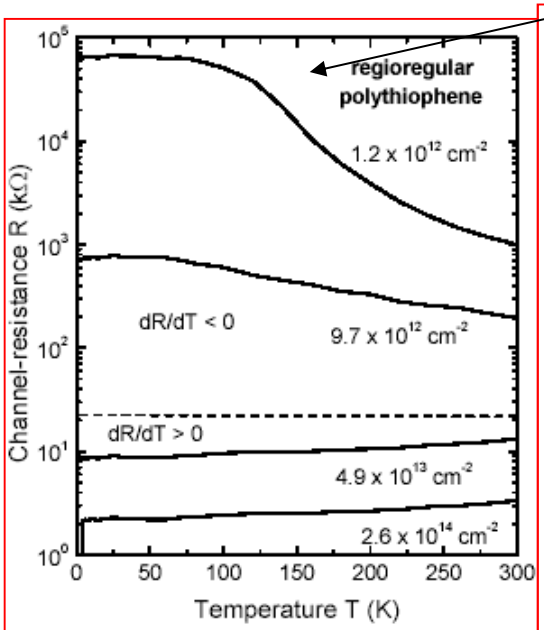


Figure 17. Plot from "Gate Induced Super" Paper (XXV) showing gate-induced reduction of resistivity as carrier density is increased, and eventual superconductivity.

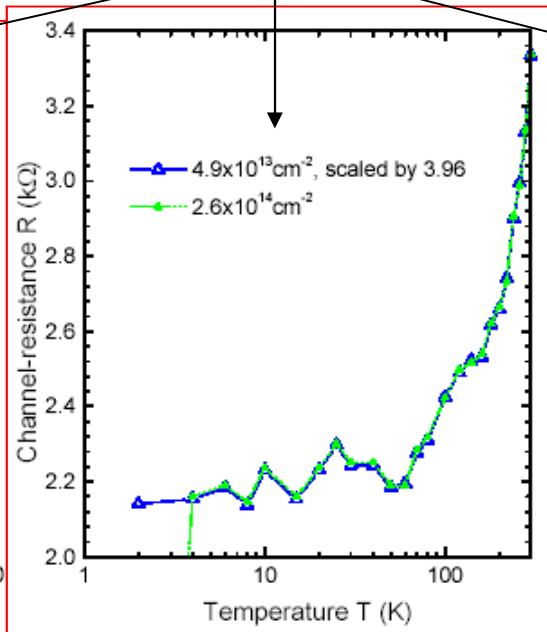


Figure 18. Original plotting data from an early draft, containing the same figure as "Gate Induced Super" Paper (XXV) (Figure 17), replotted with the 4.9x10^13cm^-2 data set divided by 3.96 to show that data are the same.

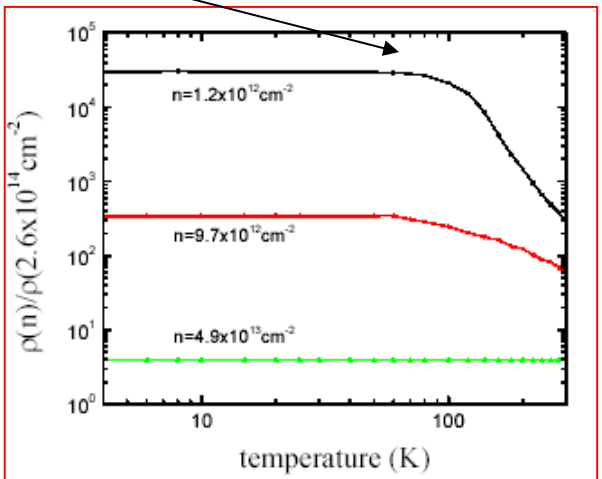
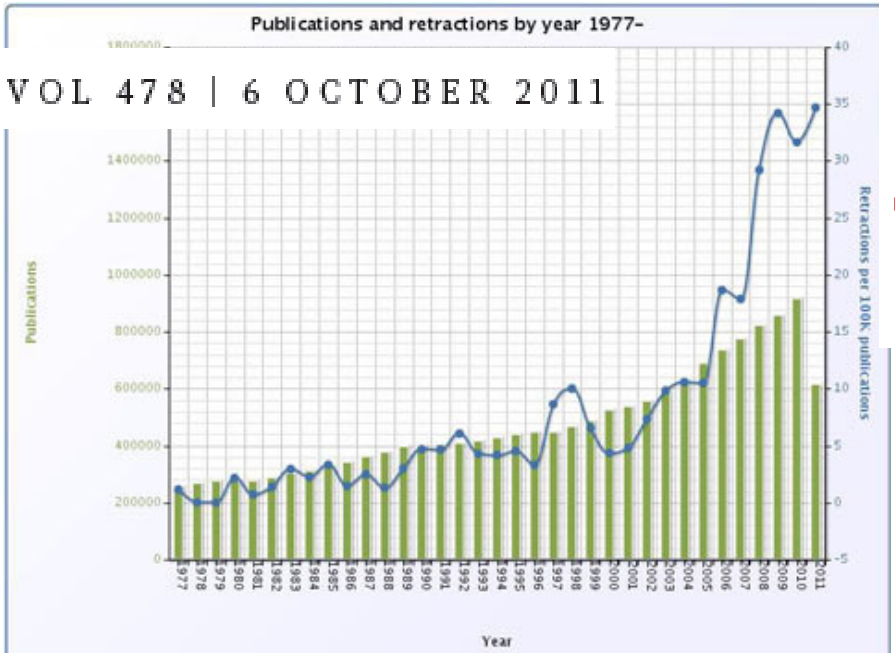


Figure 19. Original plotting data from an early draft of "Gate Induced Super" Paper (XXV). The ratio of each curve to the fourth curve (not shown) demonstrates that all of the data in Figure 17 below 60K are the same, within a constant factor.

However, I would like to state that all the scientific publications that I prepared were based on experimental observations. I have observed experimentally the various physical effects reported in these publications, such as the Quantum Hall effect, superconductivity in various materials, lasing, or gate-modulation in self-assembled

NATURE | VOL 478 | 6 OCTOBER 2011



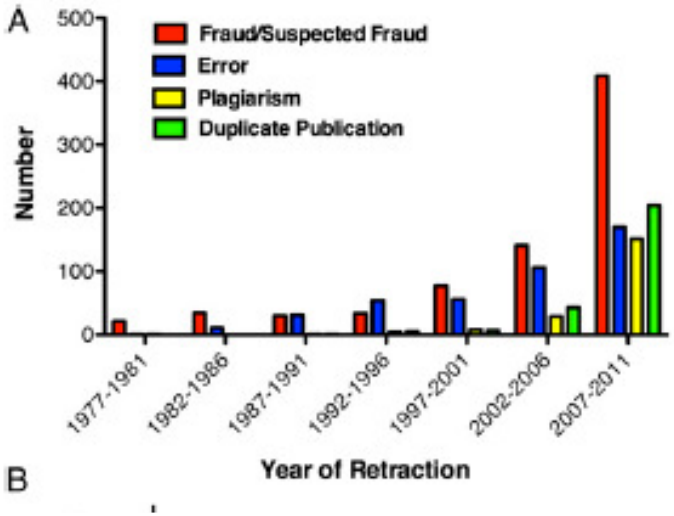
THE TROUBLE WITH RETRACTIONS

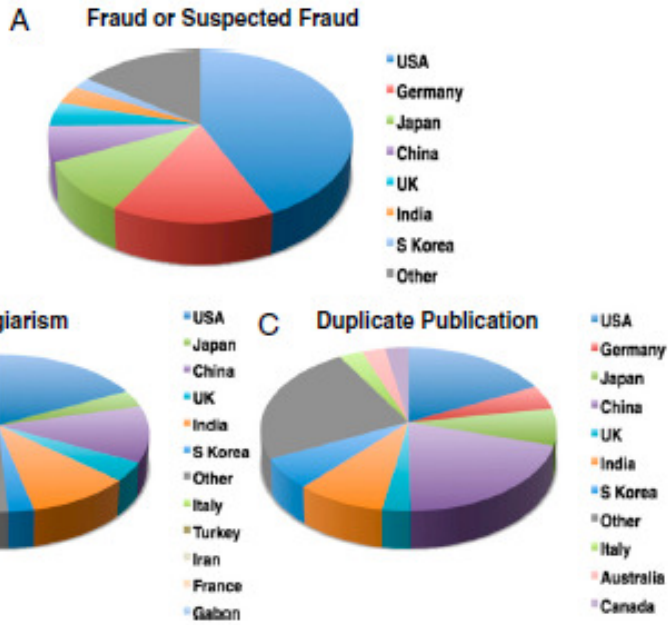
BY RICHARD VAN NOORDEN

www.pnas.org/cgi/doi/10.1073/pnas.1212247109

Misconduct accounts for the majority of retracted scientific publications

Ferric C. Fang[a,b,1], R. Grant Steen[c,1], and Arturo Casadevall[d,1,2]





www.retractionwatch.com

Retraction Watch

Tracking retractions as a window into the scientific process

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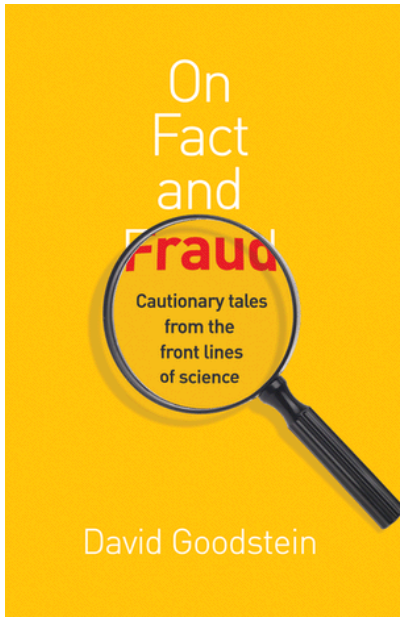
109 Entries

Scientific Fraud Hits Chemistry
Andy Extance, Chemistry World March 17, 2015



The Economist

OCTOBER 19TH–25TH 2013

Economist.com

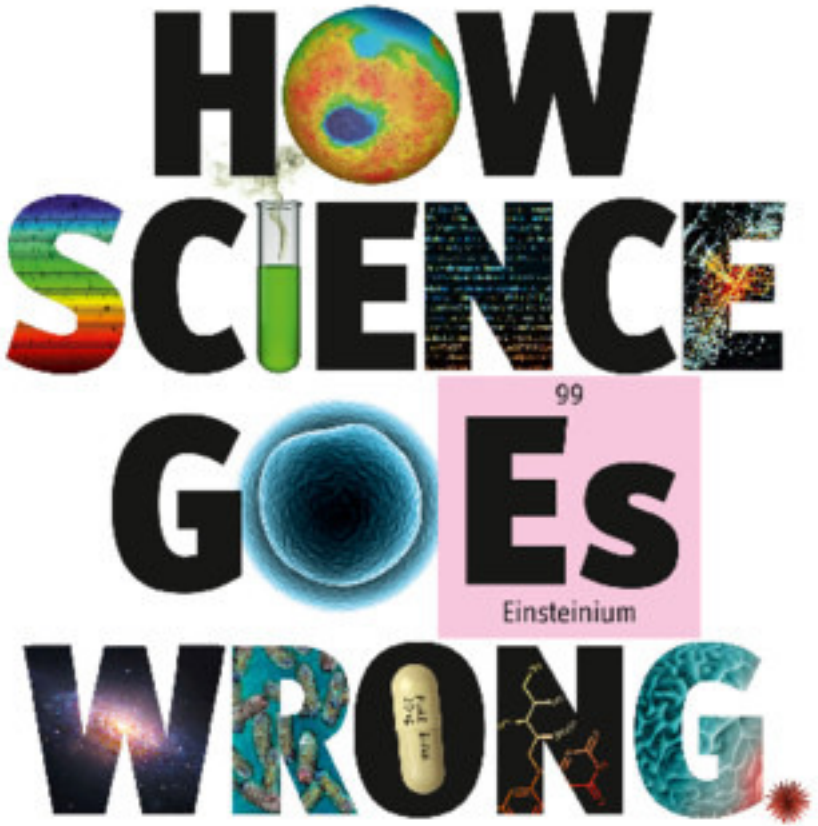
Washington's lawyer surplus

How to do a nuclear deal with Iran

Investment tips from Nobel economists

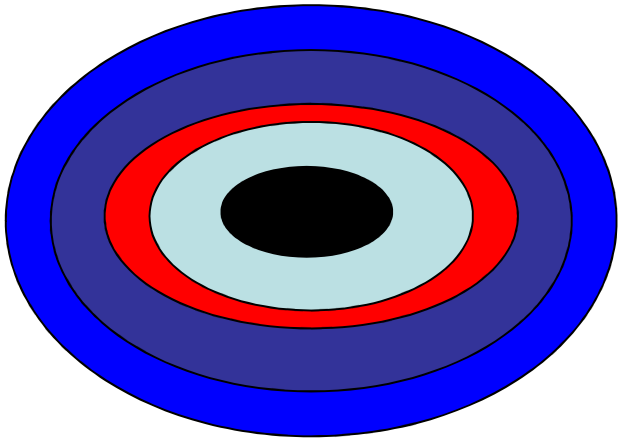
Junk bonds are back

The meaning of Sachin Tendulkar



Too many of the findings that fill the academic ether are the result of shoddy experiments or poor analysis (see article (http://www.economist.com/news/briefing/21588057-scientists-think-science-self-correcting-alarming-degree-it-not-trouble)). A rule of thumb among biotechnology venture-capitalists is that half of published research cannot be replicated. Even that may be optimistic. Last year researchers at one biotech firm, Amgen, found they could reproduce just six of 53 "landmark" studies in cancer research. Earlier, a group at Bayer, a drug company, managed to repeat just a quarter of 67 similarly important papers. A leading computer scientist frets that three-quarters of papers in his subfield are bunk. In 2000-10 roughly 80,000 patients took part in clinical trials based on research that was later retracted because of mistakes or improprieties.

- **“Ricercatore”**
- **“Coautori/Capo”**
- **“Istituzioni Ricerca”**
- **“Comunità Scientifica”**
- **“Giornali Scientifici”**



“Ruolo del Ricercatore”

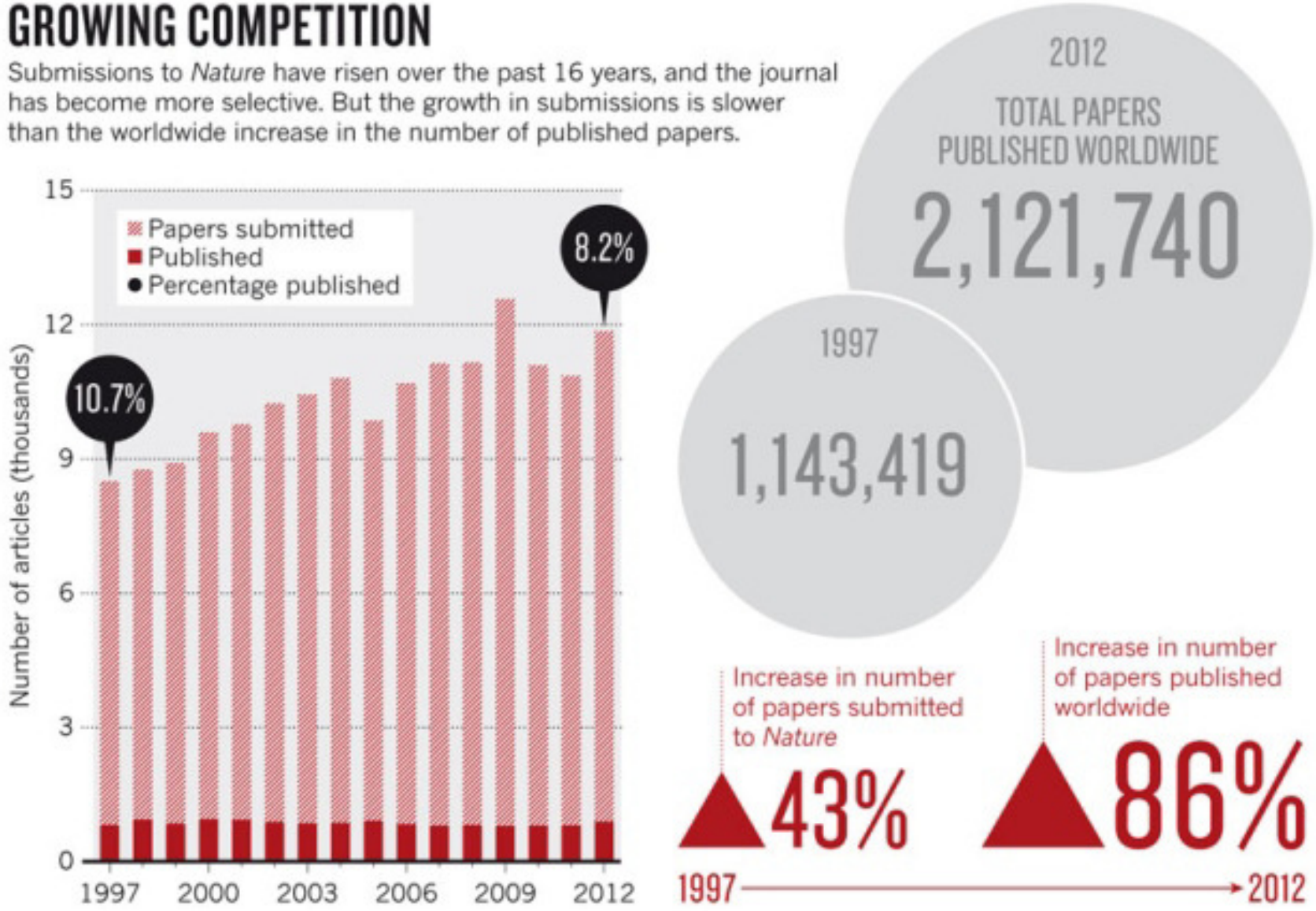
“La ricerca è frutto di un bilanciamento tra metodi obbiettivi e aspirazioni soggettive» Stephen Jay Gould

Un ricercatore ha due scopi:

✓ “Capire” il mondo

✓ Ottenere un riconoscimento personale

La struttura della ricerca (in particulare collaboratori e comunità) deve aiutare la possibilità di perseguire i due obbiettivi “mano nella mano”



nature.com

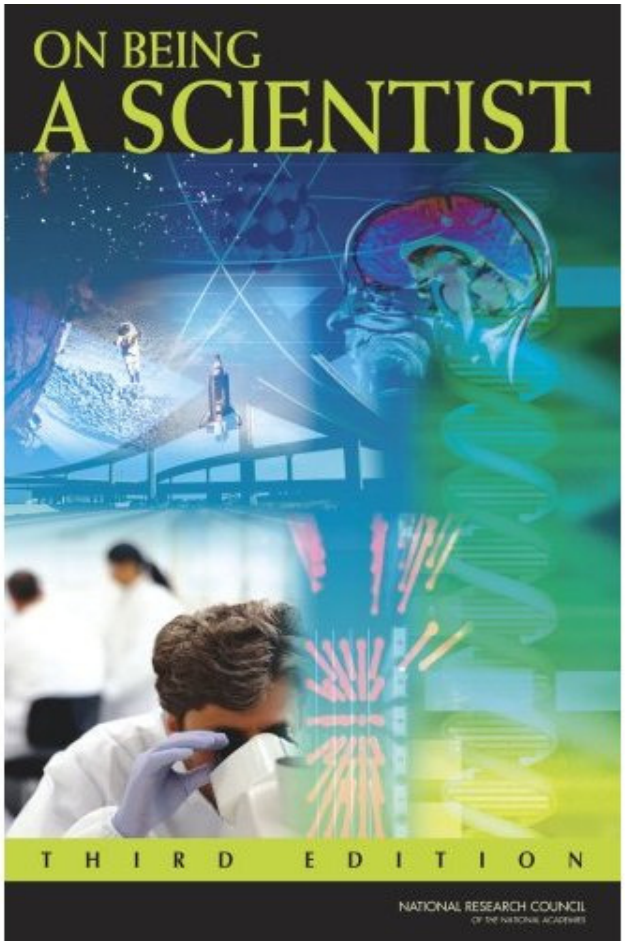
6/9/2017

Global scientific output doubles every nine years

Professionalità

The National Academies: *On Being A Scientist: Responsible Conduct in Research, 3rd Ed.* (2009).

Free, online: http://www.nap.edu/catalog.php?record_id=12192



- Introduction to the Responsible Conduct of Research
- Advising and Mentoring
- The Treatment of Data
- Mistakes and Negligence
- Research Misconduct
- Responding to Suspected Violations of Professional Standards
- Human Participants and Animal Subjects in Research
- Laboratory Safety in Research
- Sharing of Research Results
- Authorship and the Allocation of Credit
- Intellectual Property
- Competing Interests, Commitments, and Values
- The Researcher in Society
- Appendix: Discussion of Case Studies

“Good Practices and Research Integrity in Sciences”

ECTS 4

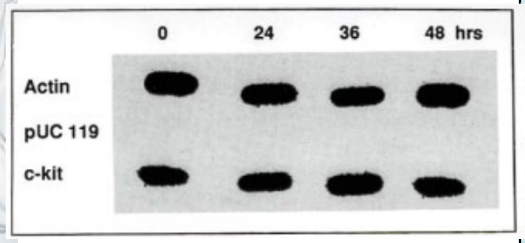
Profs. Stefano Ossicini-Elisa Molinari
Master Degree Course in PHYSICS
University of Modena and Reggio Emilia

“Ruolo del capo/coautori”

B. Batlogg “Se sono il passeggero di una macchina che passa con il rosso non è mia la colpa”

correspondence

Exploitation of junior scientists must end



Friedhelm Herrmann (1950-) Ematologo e esperto di medicina molecolare e terapia genetica.
1978 PhD in Berlin, 1985-1986 Harvard Medical School, 1987 Abilitazione in Mainz , 1988 C3 Professor University of Freiburg

Marion Brach (1960-) PhD con Herrmann 1989 Mainz-Freiburg, 1990 Harvard Medical School.

1992 **Herrmann** si sposta a Berlin, C4 Professor Free University, Senior Consultant del Robert Rössler Cancer Centre e Direttore del Centro Max Delbrück per la Medicina Molecolare
Brach Direttrice di uno dei gruppi.
1996 **Herrmann e Brach** (ora C3 professor)si spostano alla Università di Ulm.
1997 **Marion Brach** prima donna C4 Professor di Medicina Molecolare, direttrice di un nuovo istituto Lübeck University

Eberhard Hildt PhD **1993** in Tübingen
Novembre 1995 Max Delbrück Centre in Brach Group
Febbraio 1996 Ulm con gruppo Brach
Aprile 1996 Hildt sospetta figure rimaneggiate in un articolo in Journal of Experimental Medicine. Brach ammette errori e promette modifiche. Nulla succede
Dicembre 1996 nuova discussione di Hildt con Herrmann: “Ich will dich platt machen!”
Gennaio 1997 Hildt contatta il suo mentore Hofschneider

“Ruolo delle Istituzioni della Ricerca ”

Evidence for Nuclear Emissions During Acoustic Cavitation

R. P. Taleyarkhan,[1]* C. D. West,[1]† J. S. Cho,[2] R. T. Lahey Jr.,[3] R. I. Nigmatulin,[4] R. C. Block[3]†

In cavitation experiments with deuterated acetone, tritium decay activity above background levels was detected. In addition, evidence for neutron emission near 2.5 million electron volts was also observed, as would be expected for deute-
rium
t result in
ulations supported the observed data and indicated highly compressed, hot (10^6 to 10^7 kelvin) bubble implosion conditions, as required for nuclear fusion reactions.

8 MARCH 2002 VOL 295 SCIENCE

2008- Ricercatore sulla fusione a bolle condannato per cattivo comportamento scientifico

Purdue University vs.
Oak Ridge National Laboratory

ETHICS

140 | NATURE | VOL 474 | 9 JUNE 2011

Whistle-blower claims his accusations cost him his job

University denies it retaliated against researcher who questioned supervisor's data.

UNIVERSITA' DEGLI STUDI DI MODENA E REGGIO EMILIA

CODICE ETICO

Mitteilungen FU | BERLIN

29/2002 • Amtsblatt der Freien Universität Berlin • 16. 12. 2002

INHALTSÜBERSICHT

Bekanntmachungen

Akademischer Senat
Ehrenkodex
Satzung zur Sicherung guter wissenschaftlicher Praxis

Perverse incentives

SUMMARY

- Science is full of incentives that encourage bad financial choices, such as expanding labs and hiring too many temporary scientists.
- These incentives hurt both individual scientists and society as a whole, which gets minimal return on its investment when someone is trained for a field with no career prospects.
- The way forward is to fix incentives that are damaging the system, by considering their true social and personal cost.

For instance, cash incentives adopted by countries such as China, South Korea and Turkey encourage local scientists to submit papers to high-end journals despite the low probability of success. These payments have achieved little more than overloading reviewers, taking them away from their work, and have increased submissions by the three countries to the journal *Science* by 46% in recent years, with no corresponding increase in the number of publications[1].

Consider the financial calculations that encourage universities to hire a series of postdocs rather than staff scientists. Postdocs earn around half to two-thirds of a staff scientist's salary. They are young, have fresh perspectives and new ideas and are temporary, so can be let go when budgets decline[2]. But, in reality, postdocs are not cheap: substantial resources — both their own and society's — have been invested in training them.

If a postdoc doesn't get a research job, taxpayers do not get a return on their investment. Neither does the postdoc: someone

Università
2016
13965 assegniste/i di ricerca
3537 Ricercatrici/ori di tipo A
871 Ricercatrici/ori di tipo B
TOTALE 18373

	2014	2016	
Ricercatori	**21029**	**16832**	**(- 20%)**
Associati	**17549**	**19273**	**(+9%)**
Ordinari	**13263**	**12147**	**(-8%)**
Totale	**51841**	**48252**	**(- 7%)**

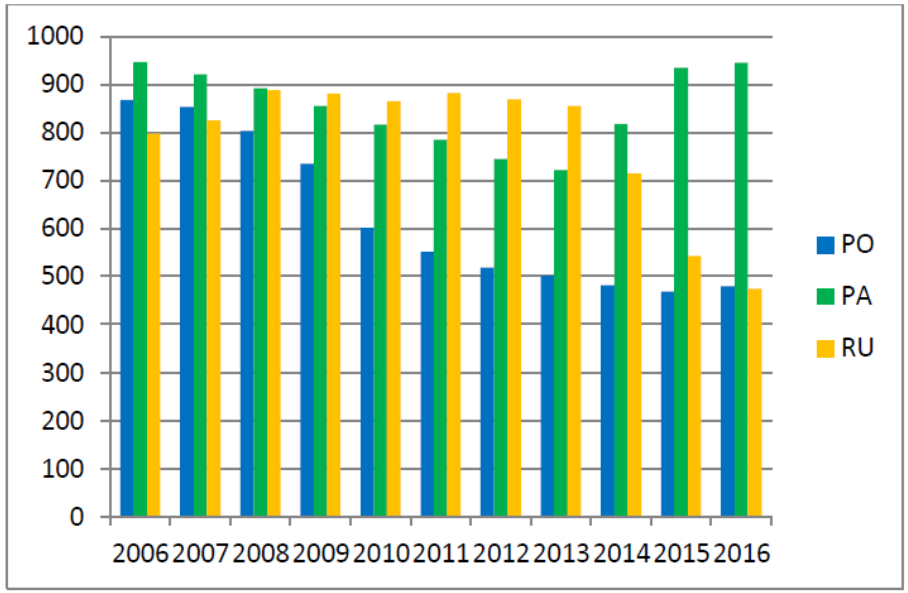


Grafico 1 – L'andamento della docenza di ruolo

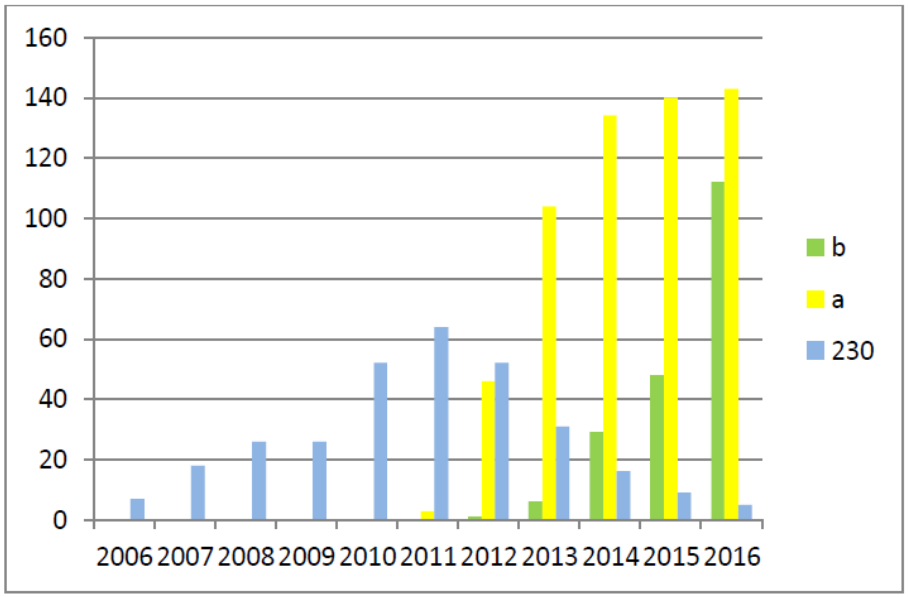


Grafico 2 – L'andamento del ricercatori a tempo determinato

Paolo Rossi - CUN

“Ruolo della Comunità Scientifica”

- Generale Fiducia
- Non è possibile!
- Autoillusione
- Nuovi campi
- Conflitto di interessi

80% Scienze Cliniche

59% Scienze della Vita

4% Fisica, Chimica

Biomedicine

ORI – Office of Research Integrity (1989)

US Department of Health and Human Services

2002

ANNUAL REPORT

The Danish Committees on

Scientific Dishonesty

Ethics and Values
02.2 APS GUIDELINES FOR PROFESSIONAL CONDUCT
(Adopted by Council on November 10, 2002)

MAX-PLANCK-GESELLSCHAFT

RULES OF GOOD SCIENTIFIC PRACTICE

- adopted by the Senate of the Max Planck Society on 24 November 2000 -

bbsrc
biotechnology and biological sciences research council

BBSRC Statement on Safeguarding Good Scientific Practice

1. Introduction

As a publicly-funded organisation, the BBSRC has a responsibility to ensure that the funds it disperses are spent properly, in accordance with the law and in the public interest. Included within this responsibility is a need to guarantee that members of the scientific community funded by the Council conduct their research, and are seen to do so, according to best scientific practice.

BBSRC expects the highest standards of scientific integrity to be adhered to by the researchers and students it funds, whether they are employees of the BBSRC or of other institutions. The Council also expects these standards to be maintained by all individuals engaged on Council business, in particular in the setting of scientific priorities and in the assessment of research. This statement addresses the issues involved in the proper conduct of scientific research, and provides guidance on the standards expected. It also considers the procedures to be followed should allegations of scientific misconduct be made.

“Ruolo delle Riviste Scientifiche”

theguardian

Nobel winner declares boycott of top science journals

Randy Schekman says his lab will no longer send papers to Nature, Cell and Science as they distort scientific process

Ian Sample, science correspondent
The Guardian, Monday 9 December 2013 19.42 GMT

“Finanziatori ed Università devono giocare un ruolo attivo. Deve essere chiaro alle commissioni che decidono sui fondi e sulle posizioni della ricerca di dover giudicare i lavori pubblicati non solo dal numero e non solo da dove vengono pubblicati, ma dalla loro qualità scientifica che è l’unica cosa a contare.

NATURE | NEWS

Publishers withdraw more than 120 gibberish papers

Conference proceedings removed from subscription databases after scientist reveals that they were computer-generated.

Richard Van Noorden

24 February 2014

The publishers Springer and IEEE are removing more than 120 papers from their subscription services after a French researcher discovered that the works were computer-generated nonsense.

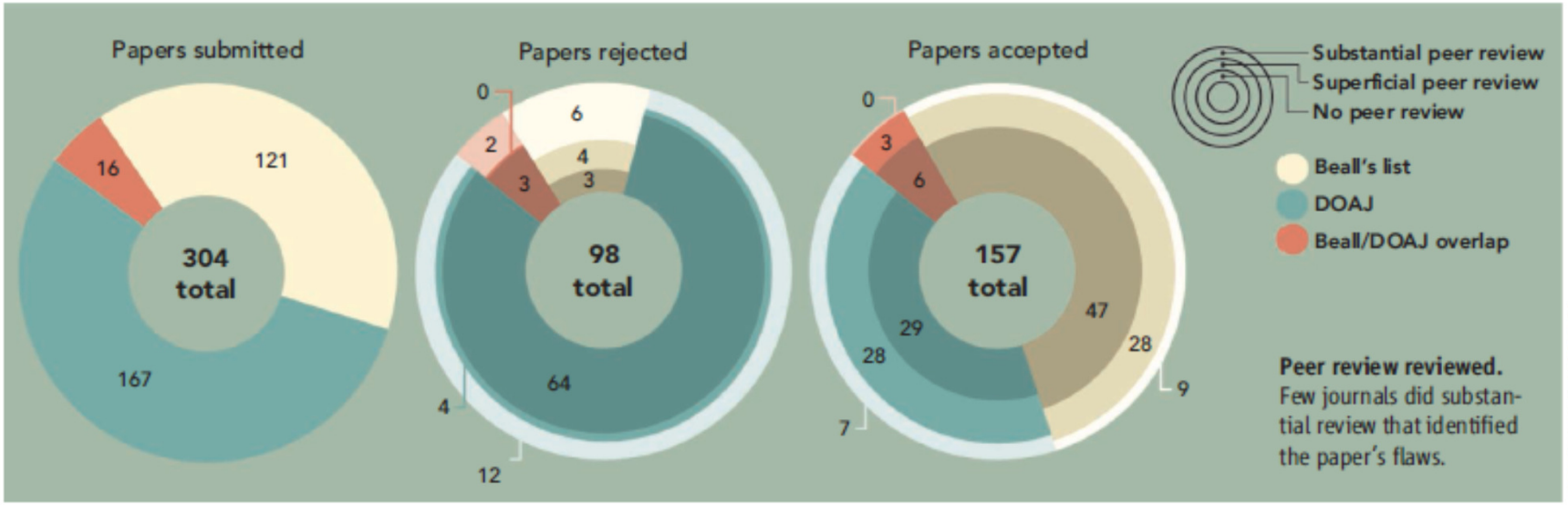
Over the past two years, computer scientist Cyril Labbé of Joseph Fourier University in Grenoble, France, has catalogued computer-generated papers that made it into more than 30 published conference proceedings between 2008 and 2013. Sixteen appeared in publications by Springer, which is headquartered in Heidelberg, Germany, and more than 100 were published by the Institute of Electrical and Electronic Engineers (IEEE), based in New York. Both publishers, which were privately informed by Labbé, say that they are now removing the papers.

4 OCTOBER 2013 VOL 342 SCIENCE

Who's Afraid of Peer Review?

A spoof paper concocted by *Science* reveals little or no scrutiny at many open-access journals

On 4 July, good news arrived in the inbox of Ocorrafoo Cobange, a biologist at the Wassee Institute of Medicine in Asmara. It was the official letter of acceptance for a paper he had submitted 2 months earlier to the *Journal of Natural Pharmaceuticals*, describing the anticancer properties of a chemical that Cobange had extracted from a lichen.



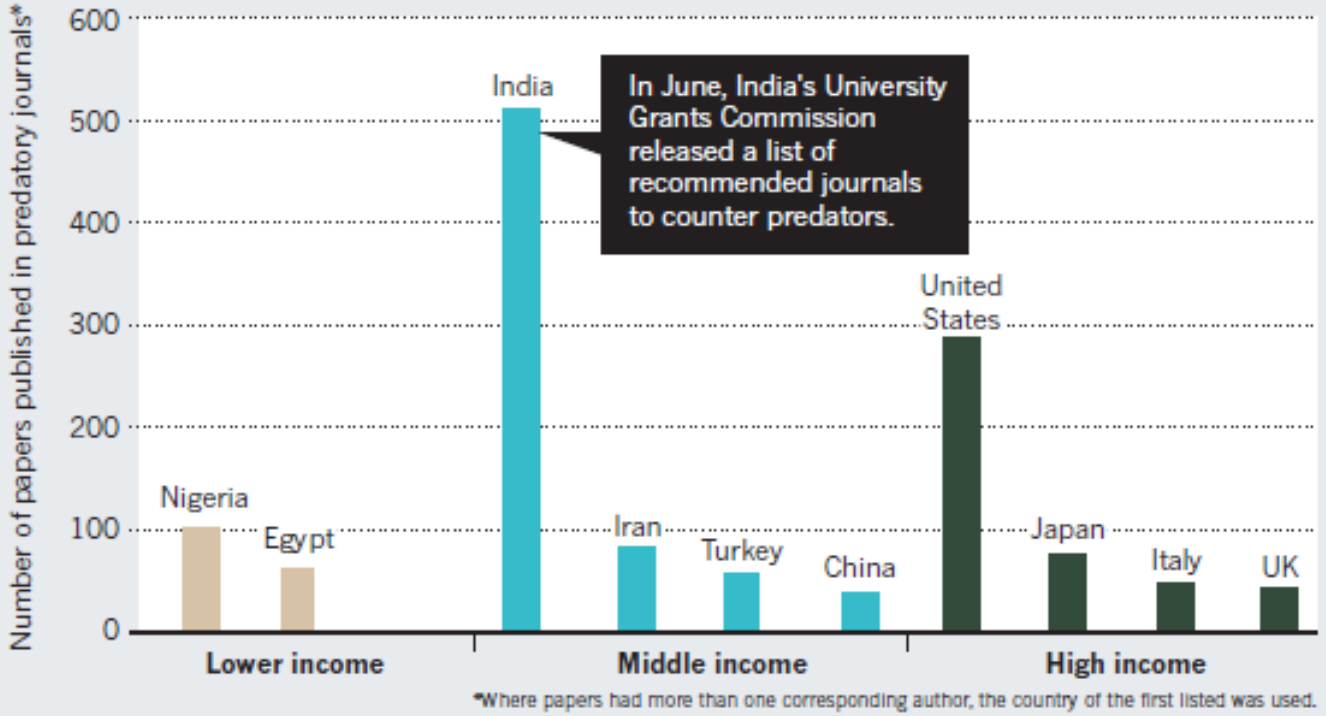
Beall's list of predatory open access journals

SOURCE: STUDY REPORTING IN PREDATORY JOURNALS GROUP

GLOBAL PREDATION

A sample of 1,907 papers in more than 200 supposed predatory journals found that most of the articles come from India. Surprisingly, however, more than half of the papers have authors from higher-income or upper-middle-income countries.

Predatory papers by country and income



*Where papers had more than one corresponding author, the country of the first listed was used.

2016

“I am really sorry:” Peer reviewer stole text for own paper

Journal editor resigned in wake of retractions for fake email addresses that enabled self-peer review

with 16 comments

The case of Hyung-In Moon — the researcher who faked email addresses for potential peer reviewers so he could do his own peer review — has already led to one resignation.

Preprint analysis quantifies scientific plagiarism

How often do researchers plagiarize each other's work? The question has previously been almost impossible to answer, as no large-scale survey of the practice had been conducted. But a computer scientist has now examined more than a quarter of a million documents from a physics preprint server. The results contain the comforting news that blatant deception is rare, but suggest that minor acts of misconduct may be more common than was previously thought.

Student plagiarism can often be checked using specialist databases of essays available for sale online, but plagiarism in published research is harder to police. Many publishers don't allow search engines to index the full text of their papers, so it's impossible to run electronic checks on new studies. Those small surveys that have been done revealed little evidence of plagiarism, but suggested that duplicate publications — in which a significant amount of an existing paper by the same author is reused without providing a reference to the original — could make up about 10% of the literature in some fields (see *Nature* 435, 258–259; 2005).

Firmer numbers can now be put on those estimates, thanks to the work of Daria Sorokina, a PhD student at Cornell University in Ithaca, New York. Sorokina's software trawled more than 280,000 entries in arXiv, a database of mainly physics, maths and computer-science preprints maintained at Cornell. Her code divides documents into seven-word chunks and looks for pairs of papers that share a suspicious number of such chunks (common phrases such as "this work was supported in part by" are excluded). The result is a list of possible plagiarisms or, if the documents share a common author, duplicate publications.

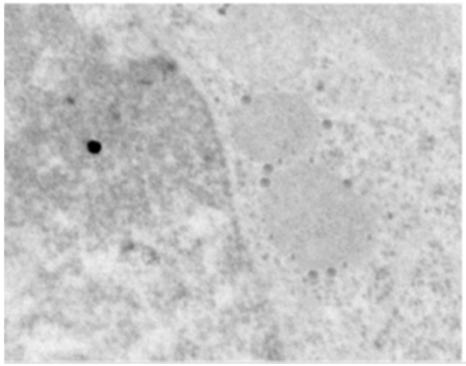
The search turned up 677 examples of possible plagiarism, of which Sorokina and her colleagues took a close look at 20. Only four were innocent mistakes, such as articles that quoted text from a third scientist. Three of the others were judged to be 'serious plagiarism' in which one article was essentially a copy of another, and in the others, parts of the paper such as the introduction or related work sections had been copied without appropriate references being given. If the analysis scales up, then just 0.2% of arXiv documents contain plagiarism. The results will be presented at the

©2006 Nature Publishing Group

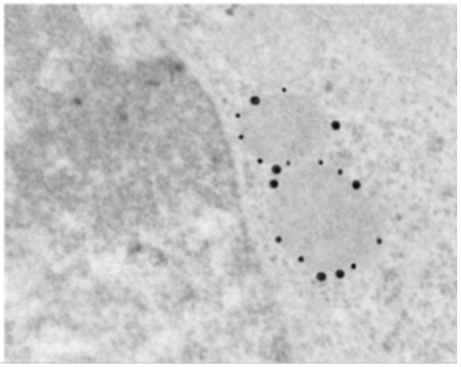
What's in a picture?
The temptation of image manipulation

Journal of Cell Biology
Volume 166(1):11-15
July 5, 2004

Original image

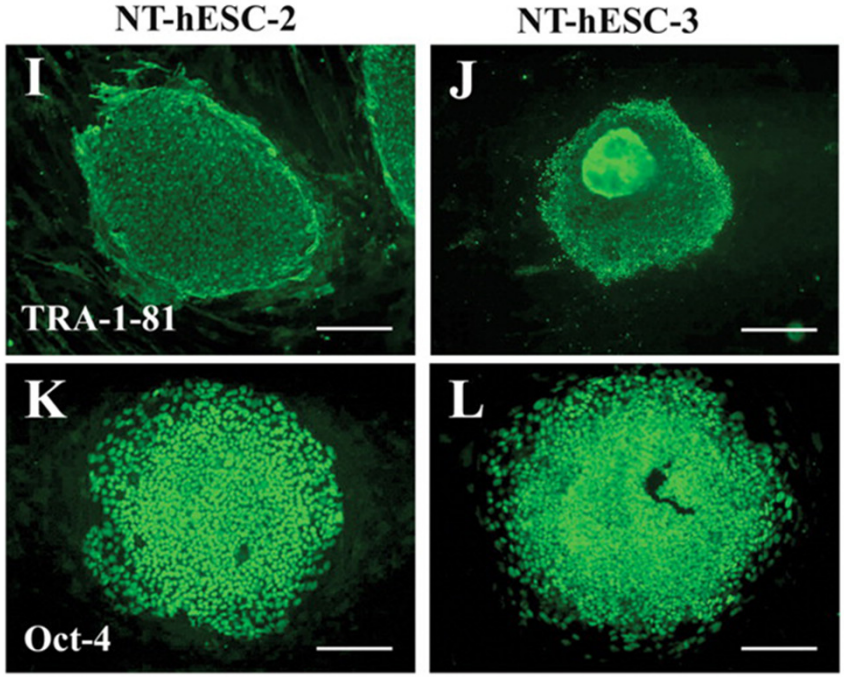


Manipulated image



Beautification of the data

Hwang, Science (2004)



A Way to Deal with Image Enhancement

Journal of Cell Biology **ha controllato tutte le immagini apparse sugli articoli pubblicati nel 2003-2006 trovando che >20% contenevano almeno un'immagine che violava le linee guida del giornale. >1% chiari casi di frode.**

Don't Pretty Up That Picture Just Yet

Scientists are used to enhancing images, but journal editors worry that the results can be misleading and are cracking down on the practice—

Science 22 December 2006:314 , 5807,1866-1868
>5% violazioni

The Prevalence of Inappropriate Image Duplication in Biomedical Research Publications

Elisabeth M. Bik[1], Arturo Casadevall*[2,3], Ferric C. Fang*[4]

bioRxiv preprint first posted online Apr. 20, 2016; doi: http://dx.doi.org/10.1101/049452.

Competing financial interests

The authors declare that they have no competing financial interests.

Nature 416:
360-363 (2012)

70 lavori sull'efficienza di una medicina per malattie cardiovascolari

Funziona- 96% (4%)

ricerche finanziate dal produttore

Non funziona- 60% (40%)

Effetti negativi-37% (63%)

Can you believe what you read?

Scientists' financial interests can bias the papers and review articles that they write, studies suggest. But what can editors do to police the issue? Frank van Kolfschooten examines journals' policies on conflicts of interest.

La Scienza è

Un processo sociale

Un processo culturale

Un processo storico

Un processo evolutivo

Accanto alla razionalità, nel processo scientifico, giocano un ruolo la creatività, l'immaginazione, l'intuizione, la caparbietà, ed altri elementi "non razionali" come l'ambizione, la retorica, l'illusione, l'invidia, la propaganda e anche la frode. E' necessario saperlo.

Le norme della scienza:
Dal CUDOS al PLACE: Giardinieri e Cacciatori nel Passaggio da Scienza Accademica e Scienza Post-Accademica

Robert Merton: L'Etica della Scienza (1942)

- **C**omunalismo: I risultati scientifici appartengono alla comunità.
- **U**niversalismo: La scienza è aperta a tutti. Senza riguardo al genere, la razza, la religione. I risultati scientifici vanno giudicati con criteri universali impersonali.
- **D**isinteresse: Lo scienziato deve separare il suoi interessi personali dalla sua ricerca
- **O**rganizzato **S**cetticismo: La comunità scientifica deve organizzare metodi per testare criticamente risultati e affermazioni.

CUDOS = PREMIO

John M. Ziman; La Vera Scienza (2000)

- **P**roprietaria (i risultati non sono necessariamente pubblici)
- **L**ocale (focus su un problema specifico)
- **A**utoritaria (decide il capo)
- **C**ommissionata (contratti per goal specifici)
- **E**sperta (pagati per risolvere problemi, non per la propria curiosità).

PLACE = POSTO

Zygmunt Baumann; Liquid Times (2007)

GIARDINIERI

La metafora del giardiniere è la più adatta per esprimere la concezione del mondo (della scienza) nell'età moderna (accademica).

Il giardiniere presuppone che nel mondo non ci sarebbe alcun ordine se non fosse per la sua attenzione e per i suoi sforzi costanti

Il giardiniere sa quali tipi di piante devono crescere e quali no nel terreno affidato alle sue cure. Dapprima elabora nella sua testa la disposizione migliore e poi provvede a trasformare questa immagine in realtà. Impone al terreno il suo progetto precostituito, incoraggiando la crescita dei tipi di piante giusti ed estirpando e distruggendo tutte le altre, adesso ribattezzate "erbacce"

CACCIATORI

L'atteggiamento del giardiniere sta cedendo il passo all'approccio del cacciatore.

Il cacciatore non è minimamente interessato all'"equilibrio generale delle cose", sia esso "naturale" oppure progettato e meditato.

L'unico compito del cacciatore è "uccidere" e continuare a farlo, finché il suo carniere non sarà pieno fino all'orlo. Sicuramente non ritiene suo dovere garantire che la disponibilità della selvaggina nella foresta possa ricostituirsi dopo, e malgrado, la caccia. Se i boschi sono rimasti senza selvaggina, si può spostare in un'altra zona, ancora relativamente intatta, ancora pullulante di possibili trofei di caccia.

Ora siamo tutti cacciatori, o così ci dicono, e siamo chiamati o costretti ad agire da cacciatori, pena l'esclusione dalla caccia, o addirittura (Dio ce ne scampi!) diventare selvaggina.

Il fatto che frodi, plagio, conflitti di interesse, dispute partigiane sulle priorità, siano ancora viste come devianti e scandalose all'interno della comunità scientifica è un tributo alla continua autorità morale dell'etica della scienza.

J.M.Ziman «LA Vera Scienza» 2000

Francis Bacon “La verità è figlia del tempo non dell’autorità”

investigation committee. Furthermore, I believe that these results will be reproduced in the future and, if possible for me, I am willing to work hard on this task, since reproduction will be the only prove of these scientific effects.

J. H. Schön

Se io e te ci scambiamo un euro rimaniamo con un euro ciascuno
Se ci scambiamo un'idea torniamo a casa entrambi con due idee. Più ricchi.