Research Integrity

Christina Moberg

Understanding Science. 2019. University of California Museum of Paleontology. 3 January 2019 <http://www.understandingscience.org>

Research integrity

Research integrity means conducting research in a way which allows others to have trust and confidence in the methods used and the findings that result from this.

Conducting research with integrity also means meeting the professional standards expected of our researchers, about creating systems that boost the quality, relevance and reliability of all research.

Research Integrity

……it is about much more than misconduct. It is about creating systems that boost the quality, relevance and reliability of all research.

The biggest impact on research integrity is achieved through sustained improvements in day-to-day practices.

Conducting research with integrity, honesty and accuracy is something to which every scientist should proudly aspire.

And it requires ongoing training for both early-career researchers and more senior faculty members.

The lectures will discuss

- *What is meant by misconduct in research*
- *Why is ethical behavior in research important?*
- *Responsibility of the scientist*
- *Misconduct in research - why, where and when?*
- *How common, and which types of misconduct are most common?*
- *Self-regulating mechanisms: Peer review and Reproducibility*
- *How to deal with and how to report observed misconduct*
- *Correction*

Ethics and Laws

***Ethics** are rules of **conduct**. **Laws** are rules developed by governments in order to provide balance in society and protection to its citizens.*

Research ethics is about building up, stimulating and keeping alive an awareness and debate about how one should act. Even if some questions concerning ethics must be governed formally, ethics is not only about laws and rules. Ethical aspects are especially important in research, since research has a major impact on society in the long term.

The Swedish Research Council

Responsible Conduct of Research (RCR)

Research Ethics

Research behavior viewed from the perspective of moral principles

Research Integrity

Research behavior viewed from the perspective of professional standards

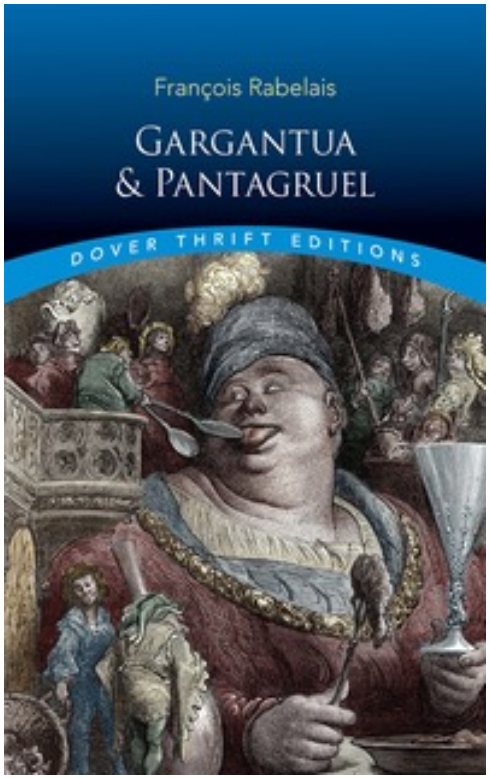
after: N. H. Steneck, *Science and Engineering Ethics*, **2006**, *12*, 53–74

Reseach Ethics

“ Science sans conscience n'est que ruine de l'âme”

(“Science without conscience is but the ruin of the soul”)

Written in a letter from Gargantua to his son Pantagruel after Gargantua has commended Pantagruel to master as many secrets of natural science as were taught in his time.



François Rabelais
(ca 1494 - 1553)

Photo: Wikipedia

The European Code of Conduct for Research Integrity

“Science is expected to enlarge mankind’s knowledge base, provide answers to global challenges, and guide decisions that shape our societies.”

ESF and ALLEA

Do researchers have higher moral than other persons?

We believe we can show that also researchers are human beings

Vad är fod forskningssed?
Synpunkter, riktlinjer och exempel
B Gustavsson, G Hermerén, B Petersson,
VRs rapportserie 2005

Or is it rather the scientific community, the self-regulating mechanisms, that guarantee the scientific integrity?

Why is ethical behavior in research important?

- *Research builds on previous results*
- *Scientific fraud may lead to risks for individuals and society - it can result in production of deficient products, dangerous or ineffective medical therapies or drugs*
- *Policy and legislation can be based on incorrect findings*
- *It may lead to decreased confidence in scientific results*
- *The general public must be willing to use public funds for research*
- *Research funding spoiled*
- *Damage the reputation of the research institution*

What to do to protect research integrity?

Chemistry World

Prevention is better than cure

- *Honesty*
  - *Communication about results and their possible applications fully*
- *Fairness*
  - *Treating others (colleagues, students..) with respect*
- *Objectivity*
  - *Try to look beyond own preconceptions and biases*
- *Reliability*
  - *Adhere to accepted methods*
- *Skepticism*
- *Accountability*
  - *Be prepared to demonstrate that results or statements can be justified*
- *Openness*

Doing Global Science, IAP (2016)

RCR: Responsible Conduct of Research

QRP: Questionable Research Practices

FFP: Fabrication, Falsification and Plagiarism

after: N. H. Steneck, *Science and Engineering Ethics*, **2006**, *12*, 53–74

Misconduct in research is defined as fabrication, falsification, plagiarism

or other practices that seriously deviate from those that are commonly accepted within the scientific community for proposing, conducting or reporting research.

It does not include honest error or honest differences in interpretations or judgments of data.

New definition (Sweden)

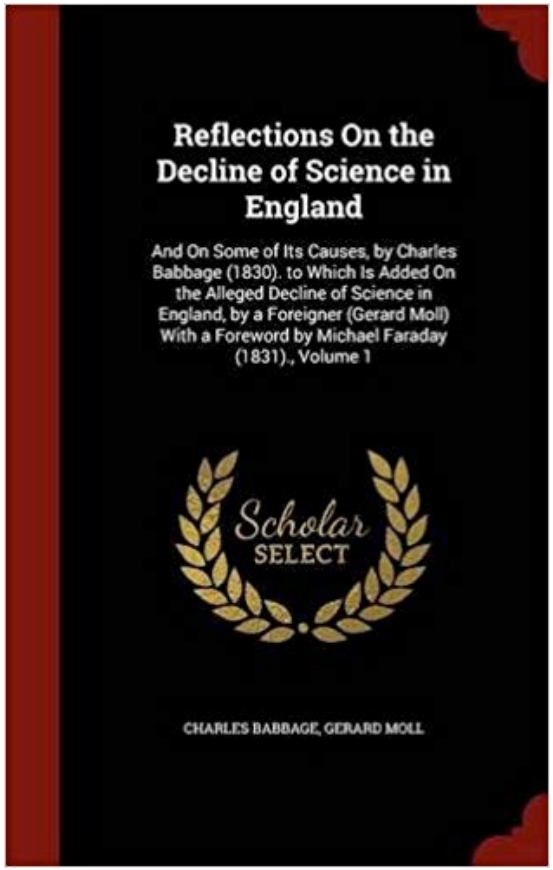
- *en allvarlig avvikelse från god forskningssed i form av fabricering, förfalskning eller plagiering som begås med uppsåt eller av grov oaktsamhet vid planering, genomförande eller rapportering av forskning.*

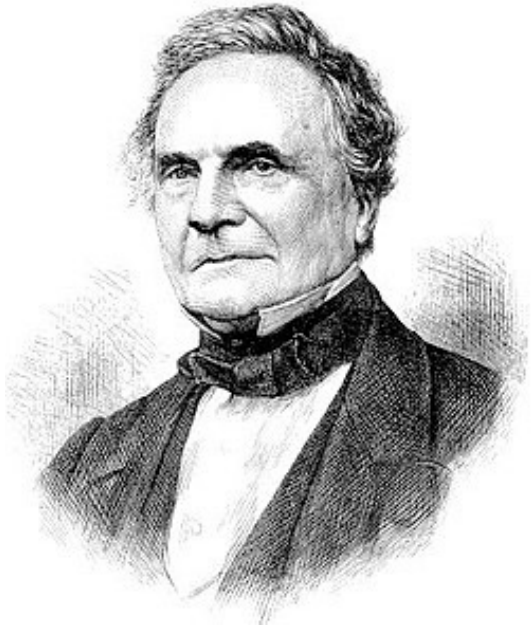
- *a serious deviation from good scientific practice in the form of fabrication, falsification or plagiarism that is committed intentionally or with gross negligence when planning, conducting or reporting of research.*

- *Fabrication*
  - *–Making up data or results and recording or reporting them*
- *Falsification*
  - *–Manipulating research materials, equipment, or processes, or changing or omitting data or results such that the research is not accurately represented in the research record*
- *Plagiarism*
  - *–Appropriation of another person's ideas, processes, results, or words without giving appropriate credit. This includes omission to cite other scientists - not giving proper credit – and Multiple publication (self-plagiarism)*

Are there cases of misconduct in research?

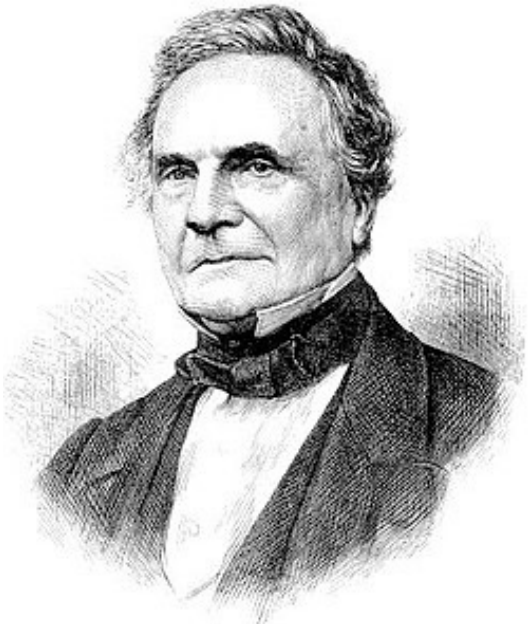
Charles Babbage "Reflections on the Decline of Science in England, and on Some of Its Causes"





Charles Babbage (1791-1871)

He complains about "several species of impositions that have been practiced in science", namely "hoaxing, forging, trimming and cooking"



Charles Babbage "Reflections on the Decline of Science in England, and on Some of Its Causes":

….a truth-seeking scientist is a careful observer who goes to great lengths to try to prevent his bias from influencing the facts he reports. A scientific fraudster does the opposite, consciously allowing preferences to interfere with the reported observations.

I have heard errors of calculation or observation defended. If small errors occur, it is said that they are too trifling to be of any importance. If larger errors are pointed out, it is immediately contended that they can deceive nobody, because of their magnitude.

Fabrication

Tim Teebken: “People looking in man's head”

Jan Hendrik Schön

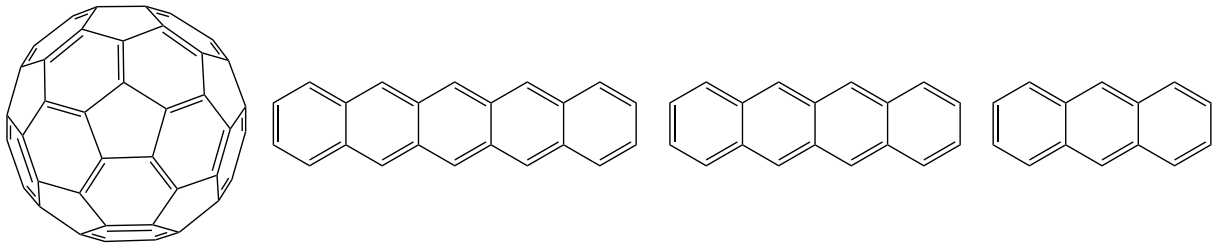
”the biggest fraud in physics in the last 50 years"

- *The world´s first organic laser*
- *The first light-emitting transistor*
- *The world´s smallest transistor*

  (single molecule transistor;

  “Breakthrough of the year”

- *Superconductivity:*



n-type conduction in copper gallium selenide

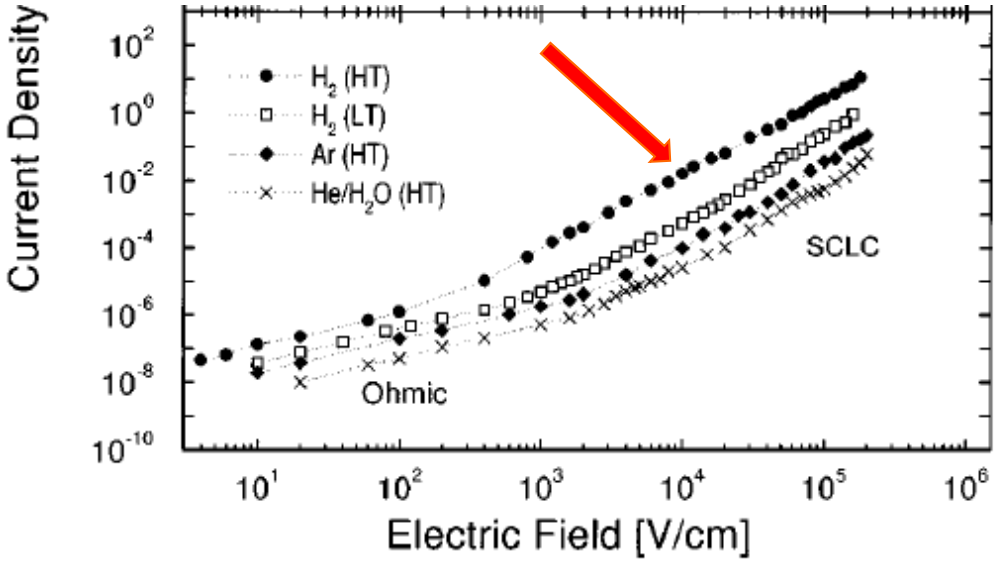


FIG. 2. Current density vs applied electric field at room temperature for conduction perpendicular (top) and parallel (bottom) to the surface of α-6T single crystals grown in different atmospheres.

Phys. Rev. B, Nov **1998**

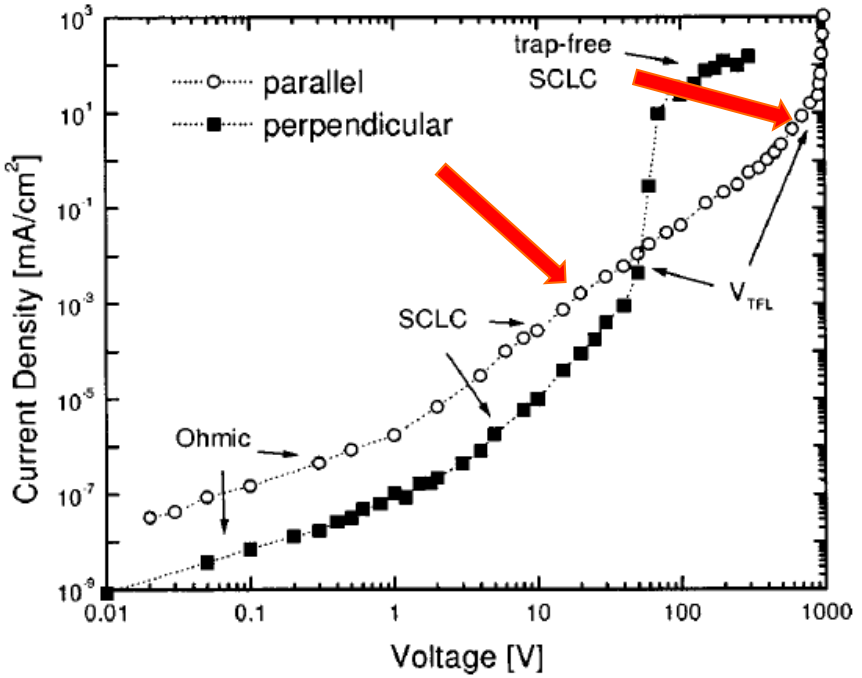
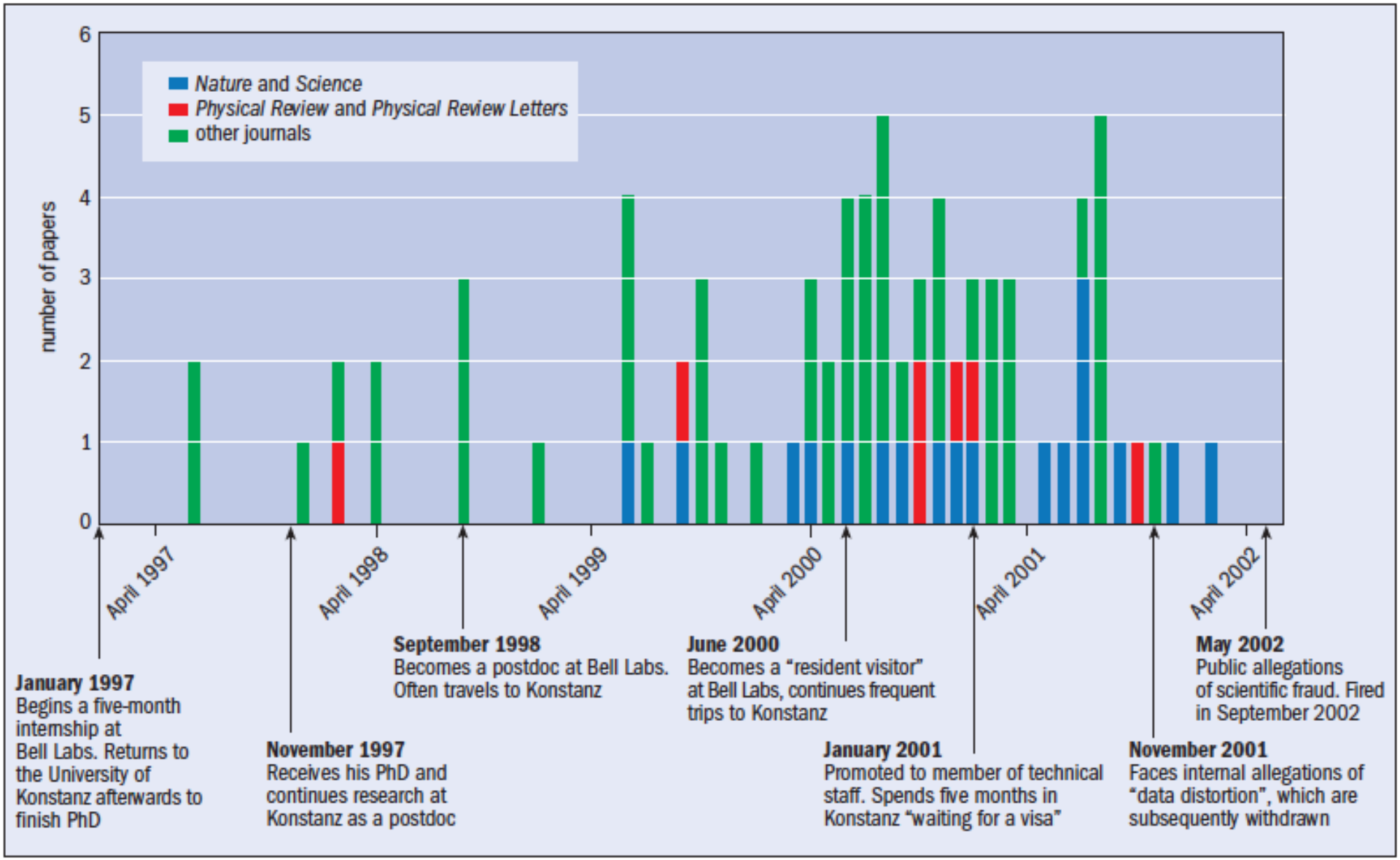


FIG. 1. Current density vs voltage for conduction parallel and perpendicular to the surface of an as-grown α-6T single crystal. The various transport regions are indicated (SCLC: space charge limited current, V_{TFL} : trap-filling limit voltage).

Appl. Phys. Lett, Dec **1998**



The paper trail This timeline of Schön's most active years shows the major events in his research career and a plot of when he submitted papers for publication. Submission dates include 66 provided by journals and 11 estimates. Shortly before his fraud was revealed, Schön submitted several papers that were never published; neither these nor his numerous conference abstracts are shown. Source: ISI Web of Science.

E. S. Reich, *Phys. World* **2009**, *22*, 24.

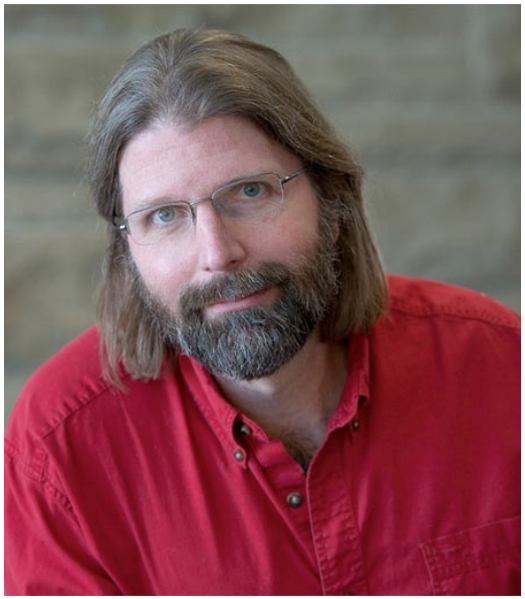
The Self-regulating Mechanisms:
Peer review and Reproducibility

Does time save the truth?
Goya: Truth, time, and history
(The National Museum, Stockholm)

"The beauty of science is that it is self-correcting. The mills of science grow slowly, yet they grind exceedingly small."

Bell Labs representatives

Lydia Sohn, Princeton
(now Berkeley)

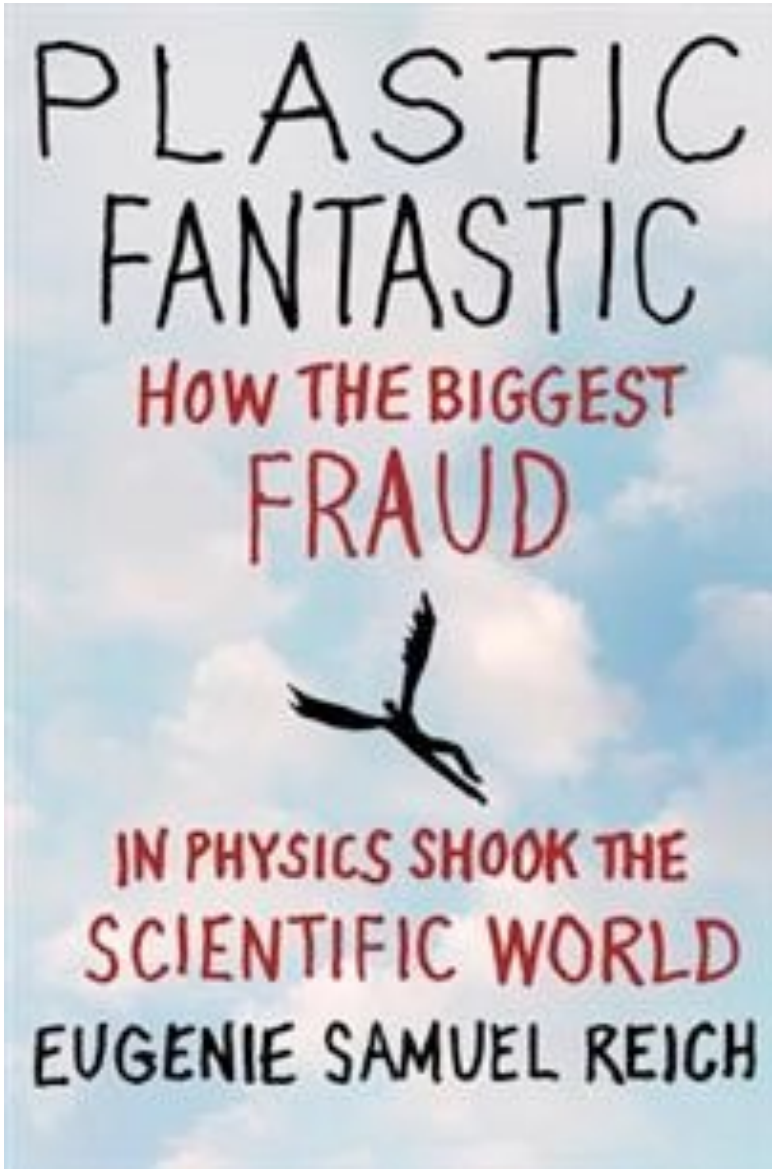


Paul McEuen, Cornell

Giacinto Scoles
Princeton

Game over

- His doctoral degree was withdrawn (although no case of misconduct during PhD studies)
- He was not allowed to receive funding from the German Research Foundation for the next 8 years


PLASTIC
FANTASTIC
HOW THE BIGGEST
FRAUD
IN PHYSICS SHOOK THE
SCIENTIFIC WORLD
EUGENIE SAMUEL REICH

Consequences

- Spoilt resources
- Spoilt reputation
- Spoilt careers
- Spoilt confidence in journals
- Spoilt confidence in science

A Career in the Balance

Peter was just months away from finishing his Ph.D. dissertation when he realized that something was seriously amiss with the work of a fellow graduate student, Jimmy. Peter was convinced that Jimmy was not actually making the measurements he claimed to be making. They shared the same lab, but Jimmy rarely seemed to be there. Sometimes Peter saw research materials thrown away unopened. The results Jimmy was turning in to their common thesis adviser seemed too clean to be real. Peter knew that he would soon need to ask his thesis adviser for a letter of recommendation for faculty and postdoctoral positions. If he raised the issue with his adviser now, he was sure that it would affect the letter of recommendation. Jimmy was a favorite of his adviser, who had often helped Jimmy before when his project ran into problems. Yet Peter also knew that if he waited to raise the issue, the question would inevitably arise as to when he first suspected problems. Both Peter and his thesis adviser were using Jimmy's results in their own research. If Jimmy's data were inaccurate, they both needed to know as soon as possible.

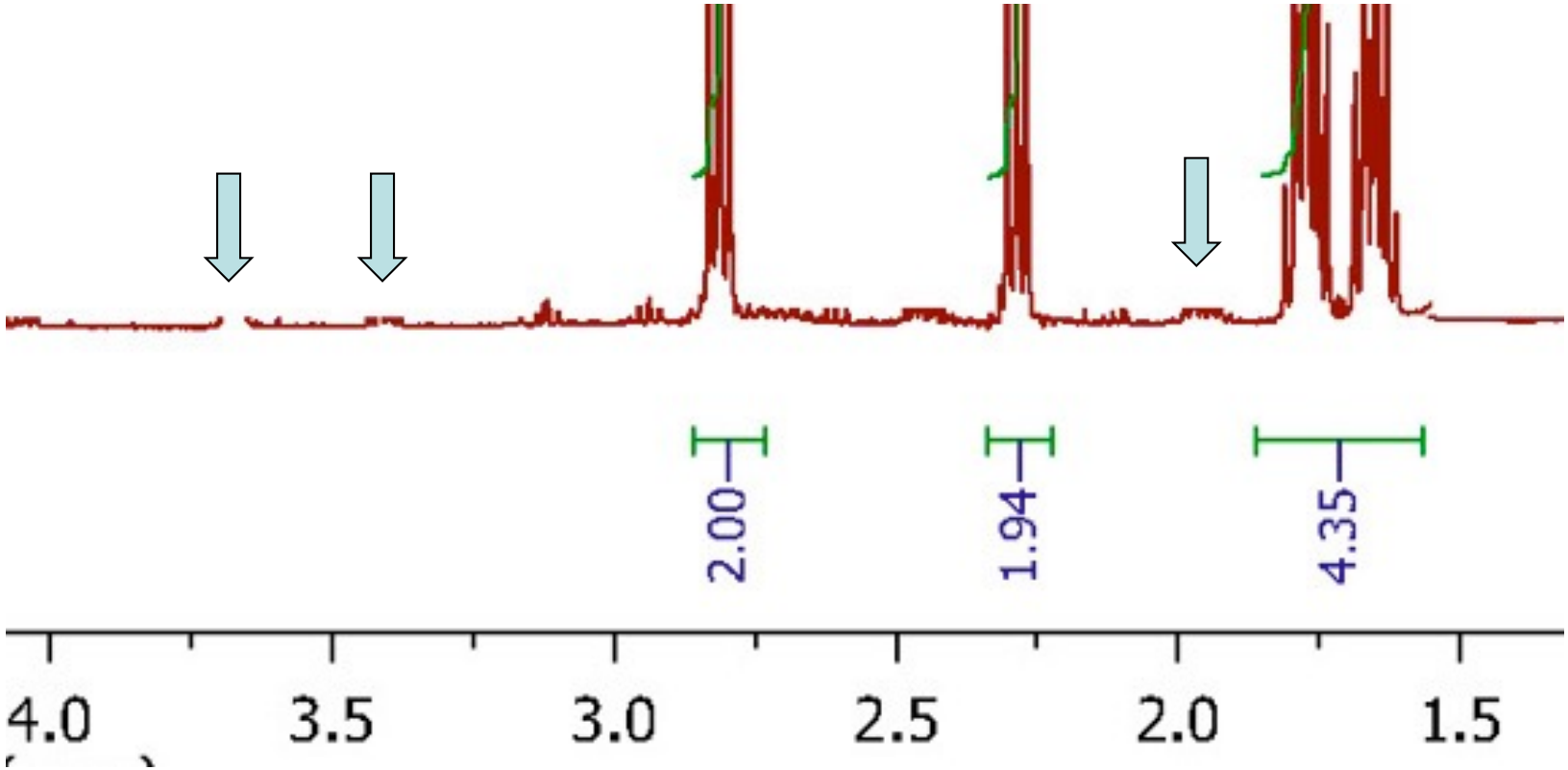
1. What kind of evidence should Peter have to be able to go to his adviser?
2. Should Peter first try to talk with Jimmy, with his adviser, or with someone else entirely?
3. What other resources can Peter turn to for information that could help him decide what to do?

ON BEING
A SCIENTIST
THIRD EDITION
Committee on Science, Engineering, and Public Policy, National Academy of Sciences, National Academy of Engineering, and Institute of Medicine

Falsification

Le Tricheur à l'as de carreau - Georges de la Tour 1635

Manipulated data



Science
AAAS

PERSPECTIVES

ECOLOGY

Ecologically relevant data are policy-relevant data

Microplastics reduce fish hatching success and survival

Misconduct?

In connection to a research project, a survey was made. 3390 replies were received and statistical results were obtained from the available data. Prior to the publication of the results, it was noted that one person had replied twice, and the number of replies were therefore in fact 3389. The PI of the project was not willing to change the figure, in spite of strong arguments from a student.

Plagiarism

strutting with borrowed plumes

Optimization of ionic conductivity in doped ceria

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J Mater Sci (2007) 42:7461–7466
DOI 10.1007/s10853-006-1486-5

Determination of dopant of ceria system by density functional theory

K. Muthukkumaran · Roshan Bokalawela · Tom Mathews · S. Selladurai

K. Muthukkumaran · S. Selladurai (✉)
Department of Physics, Anna University, Chennai, Tamil Nadu 600025, India
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R. Bokalawela
Homer L. Dodge Department of Physics and Astronomy, The University of Oklahoma, Norman, USA

T. Mathews
Surface science Section, Materials Science Division, IGCAR, Kalpakkam 603102, India

Stealing ideas (and results)

leagueofwomeningovernment.org

ChemComm

RETRACTION

Cite this: DOI: 10.1039/c9cc90478f

Retraction: Molybdenum-silver co-catalyzed cycloaddition of alkynes with *N*-isocyanoiminotriphenylphosphorane (NIITP): an efficient strategy for the synthesis of monosubstituted pyrazoles

Pengbing Mi,[ab] Jiajia Lang[c] and Shaojian Lin*[a]

DOI: 10.1039/c9cc90478f

rsc.li/chemcomm

Retraction of 'Molybdenum-silver co-catalyzed cycloaddition of alkynes with *N*-isocyanoiminotriphenylphosphorane (NIITP): an efficient strategy for the synthesis of monosubstituted pyrazoles' by Pengbing Mi *et al.*, *Chem. Commun.*, 2019, **55**, 7986–7989.

We, the named authors, hereby wholly retract this *Chemical Communications* article due to significant similarities between the article and a paper published in *Organic Letters*.[1]

Dr Pengbing Mi, one of the authors of the *Chemical Communications* paper had previously worked in the group of Professor Xihe Bi (corresponding author of ref. 1). After further investigation, the authors of the *Chemical Communications* paper have confirmed that the majority of the data in their article belongs to Prof. Bi's group and therefore, they did not have permission to publish it.

For this reason, the authors requested to retract this article. The authors apologise for their mistake and for any subsequent inconvenience to readers.

Signed: Pengbing Mi, Jiajia Lang and Shaojian Lin
Date: 17th October 2019
Retraction endorsed by Richard Kelly, Executive Editor, *Chemical Communications*

References

1 F. Yi, W. Zhao, Z. Wang and X. Bi, *Org. Lett.*, 2019, **21**, 3158–3161.

OL | Organic Letters

Letter

Cite This: *Org. Lett.* 2019, 21, 3158–3161

pubs.acs.org/OrgLett

Silver-Mediated [3 + 2] Cycloaddition of Alkynes and *N*-Isocyanoiminotriphenylphosphorane: Access to Monosubstituted Pyrazoles

Fanhua Yi,[†,§] Wanjun Zhao,[†,§] Zikun Wang,[*,†] and Xihe Bi[*,†,‡]

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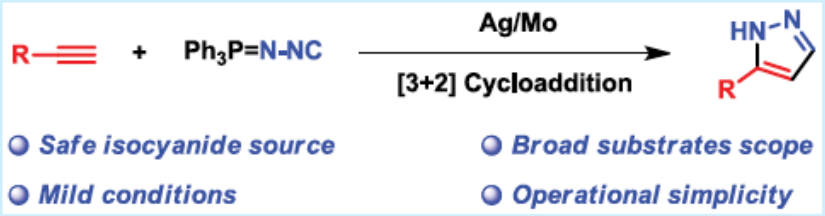
Supporting Information

ABSTRACT: A silver-mediated [3 + 2] cycloaddition of "CNN" and "C≡C" for constructing pyrazoles has been described. The "CNN" building block used is *N*-isocyanoiminotriphenylphosphorane, which is a stable, safe, easy-to-handle, and odorless solid isocyanide. The reaction is characterized by its mild conditions, broad substrate scope, and excellent functional group tolerance.



To use somebody's results and ideas

Until a research idea is publicly and ethically disseminated, researchers have an obligation to protect privileged information about planned and proposed research.

Retraction: Engaging the citizen in the circular economy: Transcending the passive consumer role (2022)

He considered that the research grant application contained sources that were inspiring and interesting to read and considered including them in a background text of the article. During the course of the work, he has not indicated which sources the cut-in texts were taken from as, according to what he states, he never intended to use the texts verbatim but intended to rework them. Over time, the texts from different sources have flowed together and it has become unclear which text comes from where. He also did not retain the research funding application as it was confidential and he had been instructed to destroy it after a period of time. He therefore could not compare his text with it. Instead, he relied on doing a search in a plagiarism tool. When that search turned up less than a 10% match, he felt confident that the article did not contain plagiarism and submitted it to the journal.

Self-Plagiarism

unicheck.com

Self plagiarism

"The Perspective was requested by the editor of JACS, and I decided to accept the invitation since I thought the work definitely deserved JACS publication," Breslow wrote. "Many people had not read my previous reviews in journals with more specialized circulation, and wrote me favorably about the Perspective, seeing the work for the first time." "

However, repetition of so much was certainly an error, so I understand why the Perspective needs to be withdrawn."

The society's "Ethical Guidelines to Publication of Chemical Research" state that "it is unacceptable for an author to include significant verbatim or near-verbatim portions of his/her work ... without acknowledging the source."

ACS Publications
Most Trusted. Most Cited. Most Read.

Ethical Guidelines to Publication of Chemical Research

The guidelines embodied in this document were revised by the Editors of the Publications Division of the American Chemical Society in July 2020.

Preface

The American Chemical Society serves the chemistry profession and society at large in many ways, among them by publishing journals which present the results of scientific and engineering research. Every editor of a Society journal has the responsibility to establish and maintain guidelines for selecting and accepting papers submitted to that journal. In the main, these guidelines derive from the Society's definition of the scope of the journal and from the editor's perception of standards of quality for scientific work and its presentation.

An essential feature of a profession is the acceptance by its members of a code that outlines desirable behavior and specifies obligations of members to each other and to the public. Such a code derives from a desire to maximize perceived benefits to society and to the profession as a whole and to limit actions that might serve the narrow self-interests of individuals. The advancement of science requires the sharing of knowledge between individuals, even though doing so may sometimes entail forgoing some immediate personal advantage.

With these thoughts in mind, the editors of journals published by the American Chemical Society now present a set of ethical guidelines for persons engaged in the publication of chemical research, specifically, for editors, authors, and manuscript reviewers. These guidelines are offered not in the sense that there is any immediate crisis in ethical behavior, but rather from a conviction that the observance of high ethical standards is so vital to the whole scientific enterprise that a definition of those standards should be brought to the attention of all concerned.

We believe that most of the guidelines now offered are already understood and subscribed to by the majority of experienced research chemists. They may, however, be of substantial help to those who are relatively new to research. Even well-established scientists may appreciate an opportunity to review matters so significant to the practice of science.

Guidelines

A. Ethical Obligations of Editors of Scientific Journals

1. An editor should give unbiased consideration to all manuscripts offered for publication, judging each on its merits without regard to race, religion, nationality, sex, seniority, or institutional affiliation of the author(s). An editor may, however, take into account relationships of a manuscript immediately under

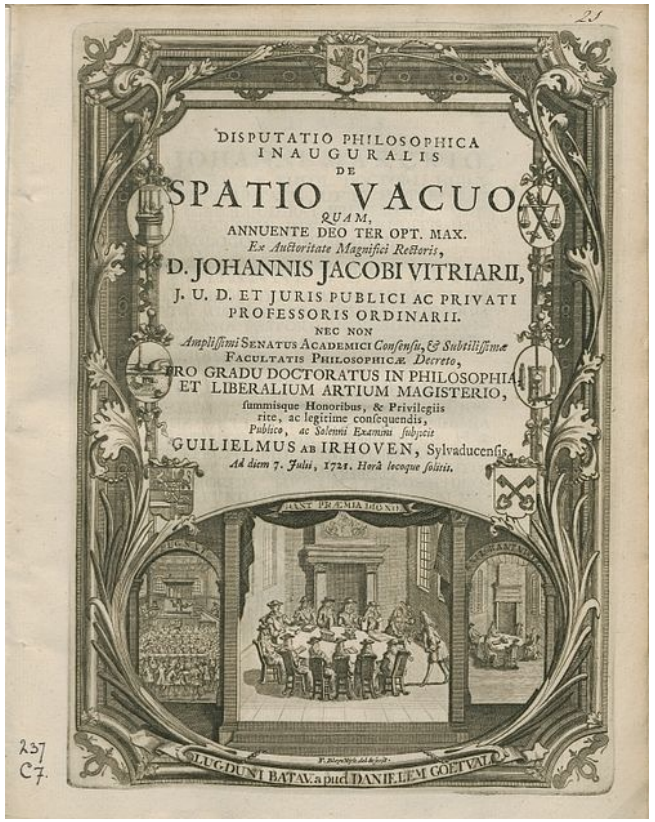
Thesis/Dissertation

Copy from papers included in the thesis; Copyright

SU: If the doctoral student in his thesis reproduces material and wording from his own previous publications and essays, this must be marked with a reference and, where appropriate, quotation marks. This applies to both monographs and summary theses. You must also have permission from any copyright owner other than yourself.

Publish material from the thesis

IC: Journals generally accept papers based on work already written up in a thesis, see individual journal polices.


DISPUTATIO PHILOSOPHICA
INAUGURALIS
DE
SPATIO VACUO
QUAM,
ANNUENTE DEO TER OPT. MAX.
Ex Auctoritate Magnifici Rectoris,
D. JOHANNIS JACOBI VITRIARII,
J. U. D. ET JURIS PUBLICI AC PRIVATI
PROFESSORIS ORDINARII.
NEC NON
Amplissimi Senatus Academici *Consensu, & Subtilissimæ*
Facultatis Philosophicæ *Decreto,*
PRO GRADU DOCTORATUS IN PHILOSOPHIA
ET LIBERALIUM ARTIUM MAGISTERIO,
summisque Honoribus, & Privilegiis
rite, ac legitime consequendis,
Publico, ac Solenni Examini subjecit
GUILIELMUS AB IRHOVEN, Sylvaducensis.
Ad diem 7. Julii, 1721. Horâ locoque solitis.

- A doctoral student was convicted of misconduct in research through plagiarism in the doctoral student's doctoral thesis. The board found that citation and reference handling did not take place in a correct manner in the introduction section. Sentences were directly copied from other sources without citation and source being indicated. In sentences based on other sources, the source was not indicated. It also appeared that some minor changes to figures were made so that it would not appear as plagiarism. The board concluded in summary that the summary contained plagiarism and stated that an errata list does not correct plagiarism of the extent that has occurred. The board judged that the plagiarism was a serious deviation from good research practice.
- The doctoral student's statement that he thought he did the right thing or that he had insufficient knowledge of the scientific ethics regulations is not an acceptable excuse. The board's overall assessment was that the doctoral student's actions were particularly reprehensible and that he was grossly negligent.

You are a postdoctoral fellow in a research group. A fellow postdoc who is relatively new to the group and whose native language is different than the one used in the lab is preparing a funding proposal with the PI for a government agency and comes to you for help with a draft. The PI has given the postdoc several previously submitted proposals from the lab to use them. The postdoc's draft proposal contains original text describing the research to be performed, which requires some editing. The draft also contains several large blocks of text that were simply copied and pasted from the example proposals.

Do you consider this plagiarism? What would you tell the other postdoc?

Doing Global Science, IAP (2016)

UK Research and Innovation:

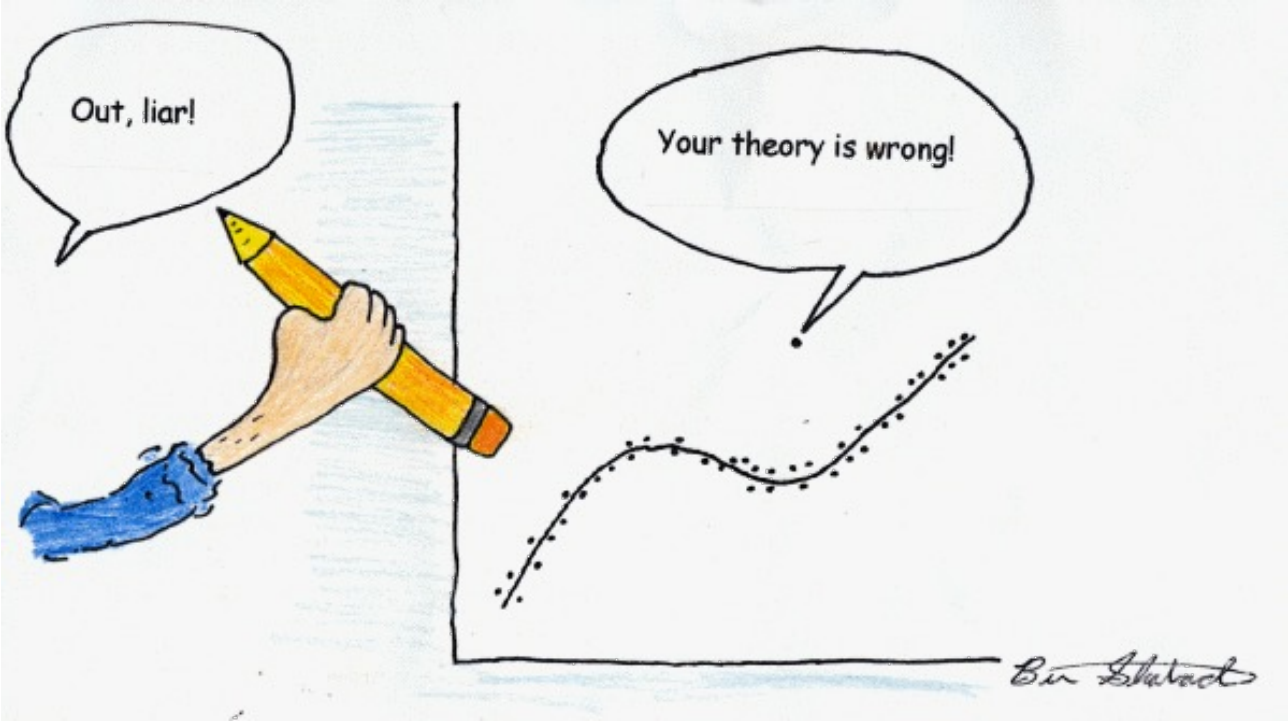
We do not allow the resubmission of any previously unsuccessful proposals (including proposals previously submitted to another research council), unless you have been explicitly invited to resubmit.

A new proposal should involve a significant change of focus from any previous proposal you have submitted.

A researcher was acquitted of suspicions of misconduct in research. The report concerned plagiarism of a research idea within the research subject area of health science and medicine. The researcher had written his own application for research funding partly based on a previous joint application. The committee assessed that the project described in the application was developed jointly and that individual contributions could not be easily distinguished. It was also not possible to determine with certainty when different co-authors had the ideas that formed the basis of the different applications. The fact that one of the co-applicants to the first application later used parts of the work in another application did not mean, according to the board's assessment, that it was a question of plagiarism in the sense of the law.

Principal investigator: Umeå University
Decision made: 2022-03-14

Questionable Research Practices, QRP



Charles Babbage: TRIMMING consists in clipping off little bits here and there from those observations which differ most in excess from the mean, and in sticking them on to those which are too small; a species of "equitable adjustment," as a radical would term it, which cannot be admitted in science.

RCR: Responsible Conduct of Research

QRP: Questionable Research Practices

FFP: Fabrication, Falsification and Plagiarism

after: N. H. Steneck, *Science and Engineering Ethics*, **2006**, *12*, 53–74

Questionable research practices (QRP) are likely to be far more prevalent and, therefore, ultimately more damaging to the research enterprise than FFP.

Science Europe Briefing Paper: Research Integrity: What it Means, Why it Is Important and How we Might Protect it, Dec 2015

Questionable Research Practices

- Selectively delete data, modify data or add fabricated data after performing initial data-analyses
- Insufficiently report study flaws and limitations
- Not publish a valid “negative” study
- Choose a cleanly inadequate research design or using evidently unsuitable measurement instruments
- Ignore basic principles of quality assurance
- Conceal results that contradict your earlier findings or convictions
- Selectively cite to enhance your own findings or convictions or to please editors, reviewers, or colleagues

Bouter, Tijdink, Axelsen, Martinson, ter Riet, *Research Integ. Peer Rev*. **2016**

Questionable Research Practices

- Use published ideas or phrases of others without referencing
- Demand or accept an authorship for which one does not qualify
- Unfairly review papers, grant applications or colleagues applying for promotion
- Ignore substantial safety risks of the study to participants, workers, or environment
- Inadequately handle or store data or materials
- Keep inadequate notes of the research process
- Insufficiently supervise or mentor junior coworkers
- Turn a blind eye to putative breaches of research integrity by others

Bouter, Tijdink, Axelsen, Martinson, ter Riet, *Research Integ. Peer Rev*. **2016**

Conclusion

- Selective reporting, selective citing, and flaws in quality assurance and mentoring are the major evils of modern research.
- Profound concerns that many scientists may be cutting corners and engage in sloppy science, possibly with a view to get more positive and more spectacular results that will be easier to publish in a high-impact journal and will attract many citations.

Bouter, Tijdink, Axelsen, Martinson, ter Riet, *Research Integ. Peer Rev*. **2016**

Prop. 2018/19:58: ”An additional requirement for it to be misconduct in research is that the fabrication, falsification or plagiarism is conducted with intent or by gross negligence. By gross negligence is meant in this context that the action appears to be particularly serious or reprehensible. As a rule, oversight, carelessness or misunderstanding should therefore not be considered as gross negligence.” (own translation)

What about ignorance?

How common?

A metastudy

About 2% of scientists admitted to have fabricated, falsified or modified data or results at least once and up to one third admitted a variety of other questionable research practices including ‘‘dropping data points based on a gut feeling’’, and ‘‘changing the design, methodology or results of a study in response to pressures from a funding source’’.

In surveys asking about the behavior of colleagues, fabrication, falsification and modification had been observed, on average, by over 14% of respondents, and other questionable practices by up to 72%.

D. Fanelli: “How Many Scientists Fabricate and Falsify Research? A Systematic Review and Meta-Analysis of Survey Data”, PLoS ONE **2009**, *4*, 1–11.

Robert Nerem, Georgia Institute of Technology:

1.3 million science and engineering research articles were published worldwide in 2013, and of those only 500 scientific papers were retracted.

Most of those retractions are purportedly due to research misconduct.

Fang, Steen, Casadevall:

A study of 2047 retracted papers in the field of biomedical and life science indexed by PubMed showed that only 21.3% were due to errors, while 67.4% were due to scientific misconduct.

Noyori, Richmond:

The number of scientific articles retracted because of fraud has increased about 10-fold since 1975.

- …..found that 3-5% of authors with one retraction had to retract another paper within the next five years – but among those with at least five retractions, the odds of having to retract another paper within the same time period rose to 26–37%.
- In some ways, these findings aren't too surprising, as people with a history of problems could see effects in multiple papers.

Retraction watch

Frances Arnold
Nobel prize in chemistry 2018

“For my first work-related tweet of 2020, I am totally bummed to announce that we have retracted last year's paper on enzymatic synthesis of beta-lactams. The work has not been reproducible.”

“It is painful to admit, but important to do so. I apologize to all. I was a bit busy when this was submitted, and did not do my job well.”

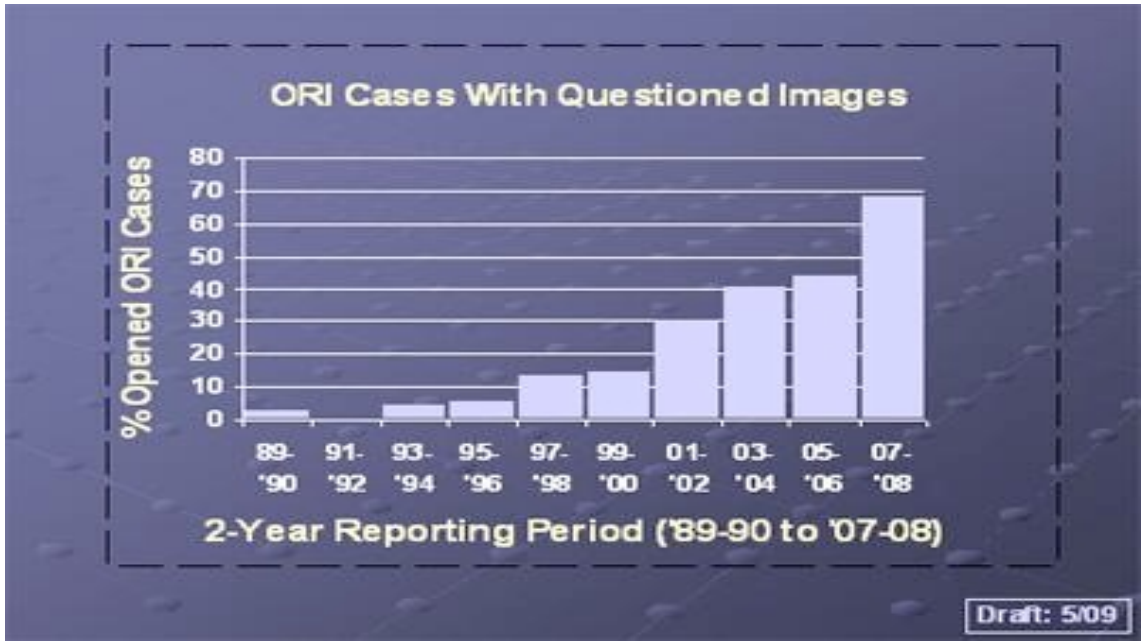
Common Types of Scientific Misconduct

- **Misappropriation of Ideas** – taking the intellectual property of others, perhaps as a result of reviewing someone else's article or manuscript, or grant application and proceeding with the idea as your own.
- **Plagiarism** – utilizing someone else's words, published work, research processes, or results without giving credit via full citation.
- **Handling of data** – dropping observations or data points from analyses based on feeling they were inaccurate

False images top form of scientific misconduct

Miriam Schuchman, CMAJ 188, 2016, 645 (10.1503/cmaj.109-5241)

”The practice likely accounts for more than 70% of cases handled by the United States Office of Research Integrity (ORI), …”



Proportion of ORI cases with questioned image, Nature, October 9, 2009

In which fields?

1 SEPTEMBER 2016 | VOL 537 | NATURE | 29

New research fields with many low-hanging fruits
Research field where results are not easily reproduced

DFG - Ombudsman

The codified rules of good, honest scientific practice include

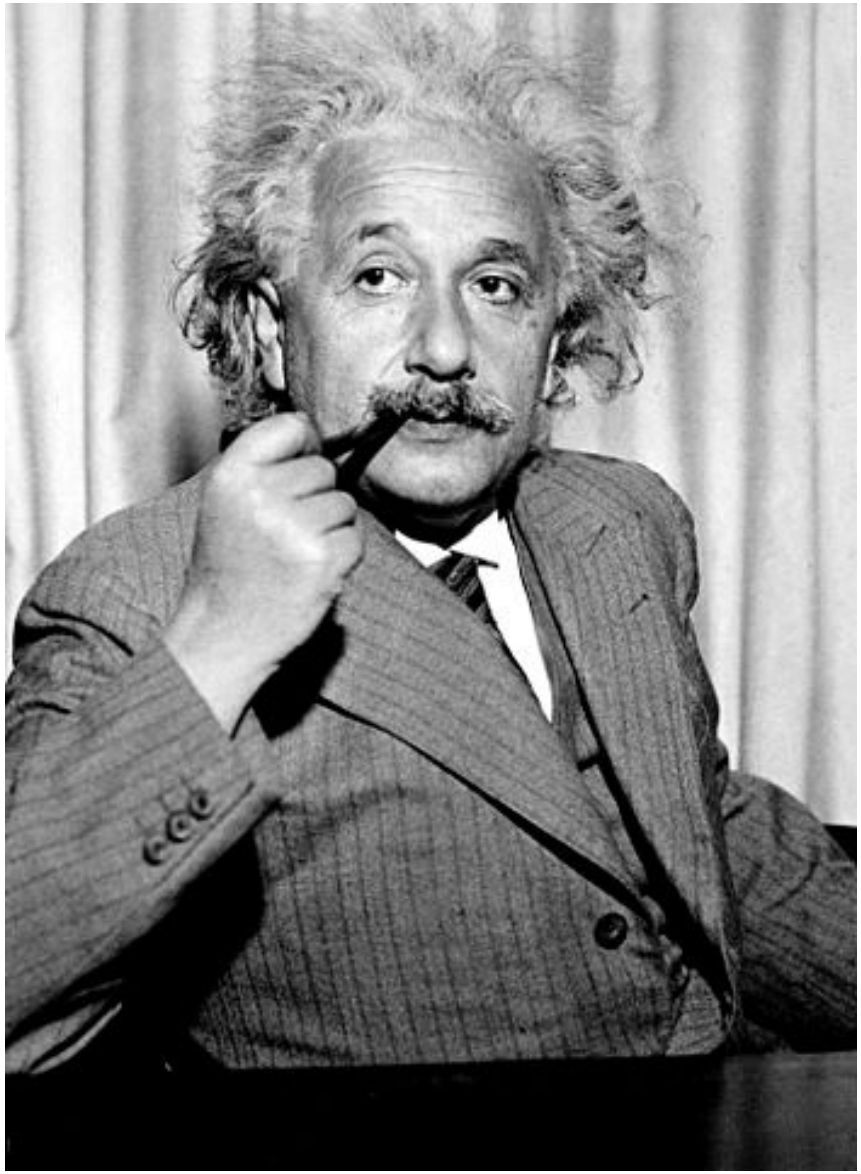
- *Observing professional standards*
- *Documenting results*
- *Consistently questioning ones own findings*
- *Practicing strong honesty with regard to the contributions of partners, competitors, and predecessors*
- *Cooperation and leadership responsibility in working groups*
- *Securing and storing scientific data**
- *Strict honesty in scientific publications*
- *Mentorship for young scientists and scholars*

- *Primary data as the basis for publications shall be securely stored for 10 years in a durable form in the institution of their origin*

Universities and research institutes shall always give originality and quality precedence before quantity in their criteria for evaluation of performance. This applies to academic degrees, to career advancement, appointments, and allocating resources.

White Paper "Safeguarding Good Scientific Practice",
Deutsche Forschungsgemeinschaft

h-index - a measure of quality?



Open Access

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

Who's Afraid of Peer Review?
John Bohannon
Science 04 Oct 2013: Vol. 342, Issue 6154, pp. 60-65
DOI: 10.1126/science.342.6154.60

- *http://science.sciencemag.org/content/342/6154/60.full*
- *http://www.theguardian.com/higher-education-network/2013/oct/04/open-access-journals-fake-paper*

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.

In fact, it should have been promptly rejected. Any reviewer with more than a high-school knowledge of chemistry and the ability to understand a basic data plot should have spotted the paper's short-comings immediately. Its experiments are so hopelessly flawed that the results are meaningless.

I know because I wrote the paper. Ocorrafoo Cobange does not exist, nor does the Wassee Institute of Medicine. Over the past 10 months, I have submitted 304 versions of the wonder drug paper to open-access journals. More than half of the journals accepted the paper, failing to notice its fatal flaws. Beyond that headline result, the data from this sting operation reveal the contours of an emerging Wild West in academic publishing.

There are numerous red flags in the papers, with the most obvious in the first data plot. The graph's caption claims that it shows a "dose-dependent" effect on cell growth—the paper's linchpin result—but the data clearly show the opposite. The molecule is tested across a staggering five orders of magnitude of concentrations, all the way down to picomolar levels. And yet, the effect on the cells is modest and identical at every concentration.

One glance at the paper's Materials & Methods section reveals the obvious explanation for this outlandish result. The molecule was dissolved in a buffer containing an unusually large amount of ethanol. The control group of cells should have been treated with the same buffer, but they were not. Thus, the molecule's observed "effect" on cell growth is nothing more than the well-known cytotoxic effect of alcohol.

The second experiment is more outrageous. The control cells were not exposed to any radiation at all. So the observed "interactive effect" is nothing more than the standard inhibition of cell growth by radiation. Indeed, it would be impossible to conclude anything from this experiment.

To ensure that the papers were both fatally flawed and credible submissions, two independent groups of molecular biologists at Harvard University volunteered to be virtual peer reviewers. Their first reaction, based on their experience reviewing papers from developing world authors, was that my native English might raise suspicions. So I translated the paper into French with Google Translate, and then translated the result back into English. After correcting the worst mistranslations, the result was a grammatically correct paper with the idiom of a non-native speaker.

The researchers also helped me fine-tune the scientific flaws so that they were both obvious and "boringly bad." For example, in early drafts, the data were so unexplainably weird that they became "interesting"—perhaps suggesting the glimmer of a scientific breakthrough. I dialed those down to the sort of common blunders that a peer reviewer should easily interdict.

The paper's final statement should chill any reviewer who reads that far. "In the next step, we will prove that molecule X is effective against cancer in animal and human. We conclude that molecule X is a promising new drug for the combined-modality treatment of cancer." If the scientific errors aren't motivation enough to reject the paper, its apparent advocacy of bypassing clinical trials certainly should be.

Acceptance was the norm, not the exception. The paper was accepted by journals hosted by industry titans Sage and Elsevier. The paper was accepted by journals published by prestigious academic institutions such as Kobe University in Japan. It was accepted by scholarly society journals. It was even accepted by journals for which the paper's topic was utterly inappropriate, such as the *Journal of Experimental & Clinical Assisted Reproduction*.

The rejections tell a story of their own. Some open-access journals that have been criticized for poor quality control provided the most rigorous peer review of all. For example, the flagship journal of the Public Library of Science, *PLOS ONE*, was the only journal that called attention to the paper's potential ethical problems, such as its lack of documentation about the treatment of animals used to generate cells for the experiment. The journal meticulously checked with the fictional authors that this and other prerequisites of a proper scientific study were met before sending it out for review. *PLOS ONE* rejected the paper 2 weeks later on the basis of its scientific quality.

The Guardian:

Hundreds of open access journals accept fake science paper

Publishing hoax exposes 'wild west' world of open access journals and raises concerns about poor quality control

Misconduct in research
- Why, where and when?

- *Personality*
  - *Mental health*
  - *Compromised objectivity*
  - *Lack of motivation*
- *Career pressure, Competition*
  - *Publish or perish*
  - *Somebody else may publish before*
  - *Funding*
- *Recognition and distinction - the glory that comes with success*
- *Lack of documentation*
- *Commercial conflicts of interest*

Misconduct in research
- Why, where and when?

[H]ow dishonesty works . . . depends on the structure of our daily environment.

—Dan Ariely (2012)

The atmosphere in the research group, the way ethical issues are handled, and the way students are treated will be important for the student's way to handle ethical issues.

Misconduct in research
- Why, where and when?

- *Missing leadership*
- *Lack of training*
- *Inadequate training*
- *Erosion of standards of mentoring*
  - *The supervisor as a role model*
- *Too much work*
- *Part of a larger pattern of social deviance*

Scientific misconduct is more likely in countries that lack research integrity policies, in countries where individual publication performance is rewarded with cash, in cultures and situations where mutual criticism is hampered, and in the earliest phases of a researcher's career. The hypothesis that males might be prone to scientific misconduct was not supported, and the widespread belief that pressures to publish are a major driver of misconduct was largely contradicted: high-impact and productive researchers, and those working in countries in which pressures to publish are believed to be higher, are less-likely to produce retracted papers, and more likely to correct them. Efforts to reduce and prevent misconduct, therefore, might be most effective if focused on promoting research integrity policies, improving mentoring and training, and encouraging transparent communication amongst researchers.

Fanelli, D.; Coastas, R.; Larivière, PlosOne June 17, 2015

Which mechanisms do we have to promote scientific integrity

.

- *Clear institutional rules*
- *Social control mechanisms*

Social control mechanisms

- Self regulating mechanisms
  - Peer review
  - Reproducibility
- Courses/discussions/atmosphere in the research group
  - Research integrity courses
  - Articulation of research integrity codes
- Reporting: Adequate reporting procedures

Robert Merton: scientific research should be conducted to expand knowledge or to benefit humanity, rather than for personal gain.

Authorship

Francisco de Goya y Lucientes - Gaspar Melchor de Jovellanos (Prado)

Ethical Guidelines to Publication of Chemical Research

The co-authors of a paper should be all those persons who have made significant scientific contributions to the work reported and who share responsibility and accountability for the results.

Who is an author?

The ICMJE recommends that authorship be based on the following 4 criteria:

1. Substantial contributions to the conception or design of the work; or the acquisition, analysis, or interpretation of data for the work; AND

2. Drafting the work or revising it critically for important intellectual content; AND

3. Final approval of the version to be published; AND

4. Agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

In addition to being accountable for the parts of the work he or she has done, an author should be able to identify which co-authors are responsible for specific other parts of the work. In addition, authors should have confidence in the integrity of the contributions of their co-authors.

"The Vancouver rules"

You are a professor who recently received tenure at one of the leading research universities in your home country after earning your PhD in another country. You are very excited about the results of recent experiments, which are significant enough to merit publication in a leading international journal. As you complete work on the manuscript for submission to one such journal, your department chair points out that acceptance of your paper will lead to significant funding increase for the department. He suggests that you add your graduate advisor at the overseas university, who was not involved in the research but is internationally known in the field, as a coauthor. This would surely improve the odds that the paper will be accepted. The department chair also indicated that he expects to be a coauthor on the paper as well, even though he has not been involved in the work.

How would you respond to the department chair? What possible consequences can you foresee if you follow his suggestions?

Co-authorship

Does this concern supervisors? students?

At the latest when the research of a student is included in a manuscript for publication, that student must be formally educated in the ethics of publishing and the consequences of violation. All senior authors need to take this responsibility seriously, not only as an educational aim, but also as self-protection. No editor considers as excuse, or even extenuating circumstances, that the text was taken from the notes of a PhD student.

Karen Hindson, Editor EurJIC

Responsibility of the co-author?

The ICMJE recommends that authorship be based on the following 4 criteria:

1. Substantial contributions to the conception or design of the work; or the acquisition, analysis, or interpretation of data for the work;

AND

2. Drafting the work or revising it critically for important intellectual content;

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3. Final approval of the version to be published;

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4. Agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

In addition to being accountable for the parts of the work he or she has done, an author should be able to identify which co-authors are responsible for specific other parts of the work. In addition, authors should have confidence in the integrity of the contributions of their co-authors.

"The Vancouver rules"

Honorary authors and ghost authors

One 2011 survey of the corresponding authors of more than 500 papers in 6 leading medical journals found that 17.6% admitted that their papers included 'honorary authors', individuals named as authors despite not meeting authorship criteria set out in guidelines issued by the International Committee of Medical Journal Editors, and 7.9% had ghost authors whose names were ultimately missing from the paper.

In another study, a group at the US National Institute of Environmental Health Sciences (NIEHS) in Research Triangle Park, North Carolina, carried out an online survey of almost 6,700 international researchers who had published papers that listed at least two authors. The results showed that 46.6% had experienced disagreements about author naming, and that 37.9% had had disputes about name order on author lists.

Disagreements about who to include as an author were 50% more common in the medical sciences than in the natural sciences, and disputes over name order were nearly 70% more common.

N. Fleming, *Nature* **2021**, 14 June

2015

Acknowledgements: This article was written during a short stay of the corresponding author at the Graduate School of Mathematics of Nagoya University as a visiting professor. I would also like to thank the Graduate School of Mathematics and their members for their warm hospitality.

Its authors were affiliated with institutions in China and Japan. The corresponding author — the listed one, anyway — is Ikudol Miyamoto. Nagoya University have confirmed that Ikudol Miyamato has not been affiliated with their Graduate School of Mathematics.

● *To become an ATLAS author, a person must:*

– Have been a Qualifying ATLAS Member for at least one year.

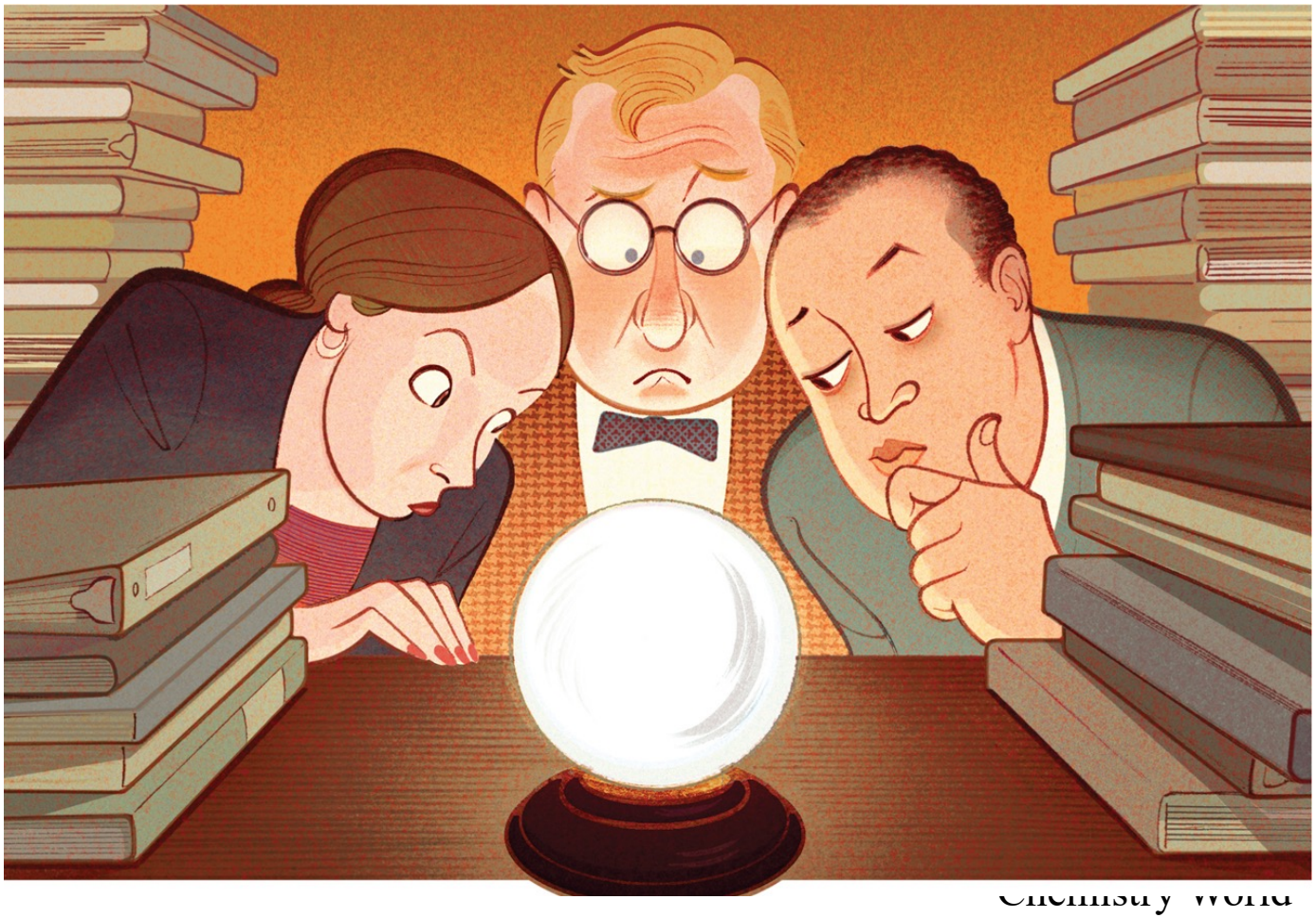
– Not be an author of another major LHC collaboration at the time of finalising the qualification work and being eligible to become an active ATLAS Author (this rule applies to all physicists, but an exception may be made for engineers).

– Complete a qualifying task, defined by a Project Leader or Activity Coordinator taking into account the special skills and availability of the person and corresponding to a work load of about 80 full working days. Normally the task should be completed within one year.

● All Active ATLAS Authors are expected to continue to do some technical work [min kommentar: O(20%) av sin tid] each year after they qualify. Operation tasks will be allocated to the Institution in proportion to the number of Active ATLAS Authors plus Qualifying ATLAS Members.

from Sara Strandberg

Peer review



Chemistry World

Peer review

Publications, research applications, academic positions

- *Conflict of interest*
- *Objectivity*
- *Knowledge*
- *Biases*
  - Unconscious assumptions about gender, ethnicity, disabilities, nationality, and institutions
- *Dealing with peer review material*
- *Manipulation*

- *Does the system work satisfactorily?*

Conflict of interest:

You are a graduate student completing your PhD dissertation and are invited to peer-review a manuscript for a journal for the first time. The peer-review system is a hallmark of the scientific process and you are excited to be part of it. You read the abstract and believe that your expertise allows you to perform a thorough review and accept the invitation to receive the full manuscript. While reading the paper, you are able to deduce that the first author is a close friend with whom you worked in the past and who will soon be looking for a tenure-track position. You also notice that the paper contains significant flaws in the data-analysis, and you believe that it should be substantially revised or rejected for that reason.

What would you do in this situation?

Objectivity

Peer review: results based on 31 replies

	1	***2***	***3***	***4***	***5***
• Scientific merit	2	3	7	14	5
• Clarity of description	1	0	6	15	8
• Statistical methods	4	2	7	11	7
• Methodology	2	0	5	17	6
• References	0	2	2	15	11
• Quality of tables/fig.s	0	1	10	16	3
• Discussion	1	3	8	13	5
• Linguistic merit	0	1	6	16	7
• Overall judgement	2	2	4	16	5

1*: unacceptable;* ***2****: acceptable;* ***3****: fair;* ***4****: good;* ***5****: excellent*

Ernest et al *Nature* **1993**, *363*, 296

Inconsistency

Sometimes the inconsistency can be laughable. Here is an example of two reviewers commenting on the same papers.

Reviewer A: `I found this paper an extremely muddled paper with a large number of deficits'

Reviewer B: `It is written in a clear style and would be understood by any reader'.

J R Soc Med. 2006 Apr; 99(4): 178–182

Bias

The most famous piece of evidence on bias against authors comes from a study by DP Peters and SJ Ceci. They took 12 studies that came from prestigious institutions that had already been published in psychology journals. They retyped the papers, made minor changes to the titles, abstracts, and introductions but changed the authors' names and institutions. They invented institutions with names like the Tri-Valley Center for Human Potential. The papers were then resubmitted to the journals that had first published them. In only three cases did the journals realize that they had already published the paper, and eight of the remaining nine were rejected—not because of lack of originality but because of poor quality. Peters and Ceci concluded that this was evidence of bias against authors from less prestigious institutions.

J R Soc Med. 2006 Apr; 99(4): 178–182

Peer review and gender bias: A study on 145 scholarly journals

Scholarly journals are often blamed for a gender gap in publication rates, but it is unclear whether peer review and editorial processes contribute to it. This article examines gender bias in peer review with data for 145 journals in various fields of research, including about 1.7 million authors and 740,000 referees.

We reconstructed three possible sources of bias, i.e., the editorial selection of referees, referee recommendations, and editorial decisions, and examined all their possible relationships. Results showed that manuscripts written by women as solo authors or coauthored by women were treated even more favorably by referees and editors. Although there were some differences between fields of research, our findings suggest that peer review and editorial processes do not penalize manuscripts by women. However, increasing gender diversity in editorial teams and referee pools could help journals inform potential authors about their attention to these factors and so stimulate participation by women.

Science advances **2021***, 7,* 1-11

Dealing with peer review material

P, professor at the O university had 70-80 research applications from NIH to review. He asked one of his postdocs to help. One application, from professor M at the T university, was copied by the postdoc and its content was later sent to prof P as a "progress report". Prof M did not receive any grant, but prof P liked the postdoc's ideas and included them in a research application to NIH - which was sent to prof M for review. "Some of the chemistry looked oddly familiar" he said in an interview.

What mistakes were made?

Decision in case 3.1-22/0140 A researcher was convicted of misconduct in research through plagiarism in a scientific article. The research subject area was social science. The suspicions concerned plagiarism from a research funding application sent to a research council. The suspected researcher was appointed as an examiner of research funding applications at the Swedish Research Council and in that capacity received part of the application. The board found that it was a matter of plagiarism. It was also judged to be a serious deviation from good research practice, among other things, because the plagiarism referred to a number of paragraphs that were copied almost verbatim from the research funding application without citations or sources being indicated. Most of the paragraphs contained not only one plagiarized text but several meaningful arguments assembled from and based on several other sources. It was thus not a question of generally accepted descriptions or the like. In addition to this, the board attached particular importance to the fact that the researcher received the research funding application as a reviewer and that he signed an agreement to handle it confidentially and not for purposes other than the review. The fact that he, despite this, took part of the main idea behind the research funding application and also plagiarized text was considered particularly serious. Principal investigator: Lund University Decision made: 2022-12-16

Manipulation: The peer-review scam

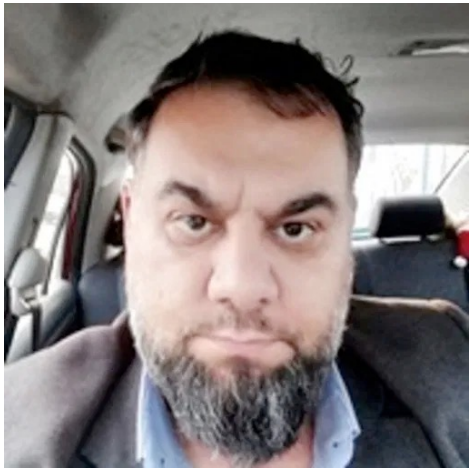
When a handful of authors were caught reviewing their own papers, it exposed weaknesses in modern publishing systems. Editors are trying to plug the holes.

Cat Ferguson, Adam Marcus & Ivan Oransky

So Moon provided names, some-times of real scientists and sometimes pseudo-nyms, often with bogus e-mail addresses that would go directly to him or his colleagues. His confession led to the retraction of 28 papers by several Informa journals, and the resignation of an editor.

Moon's was not an isolated case. In the past 2 years, journals have been forced to retract more than 110 papers in at least 6 instances of peer-review rigging.

False reviewers



An agriculture researcher has lost nine papers from Elsevier journals for “illegitimate reviewer reports.”

After a thorough investigation, the Editor has concluded that the acceptance of this article was based upon the positive advice of two illegitimate reviewer reports. The reports were submitted from email accounts which were provided by the corresponding author as suggested reviewers during the submission of the article. Although purportedly real reviewer accounts, the Editor has concluded that these were not of appropriate, independent reviewers.

This manipulation of the peer-review process represents a clear violation of the fundamentals of peer review, our publishing policies, and publishing ethics standards. Apologies are offered to the reviewers whose identity was assumed and to the readers of the journal that this deception was not detected during the submission process.

Is peer review a means for self correction?

A 2013 study sent a fabricated manuscript containing unacceptable errors to over 300 journals where poor review practices were suspected. Alarmingly, the survey found that over half of the journals accepted the manuscript for publication following peer review, even where reviewers had pointed out difficulties with it.

An examination of some of the most well-known perpetrators of serious misconduct shows that many had a significant number of fraudulent or questionable publications (a record 170 in the case of Yoshitaka Fujii) that peer review of those publications had failed to detect.

Science Europe Briefing Paper:Research Integrity: What it Means, Why it Is Important and How we Might Protect it De c e m b e r 2015

Conclusion

So peer review is a flawed process, full of easily identified defects with little evidence that it works. Nevertheless, it is likely to remain central to science and journals because there is no obvious alternative, and scientists and editors have a continuing belief in peer review. How odd that science should be rooted in belief.

J R Soc Med. 2006 Apr; 99(4): 178–182

What can be done?

Even though many science journals, traditional and OA, claim to be peer reviewed, the truth is that different levels of peer review occur, and in some cases no, insufficient, or pseudo-peer review takes place. This ultimately leads to the erosion of quality and importance of science, allowing essentially anything to become published, provided that an outlet can be found. In some cases, predatory OA journals serve this purpose, allowing papers to be published, often without any peer review or quality control. In the light of an explosion of such cases in predatory OA publishing, and in severe inefficiencies and possible bias in the peer review of even respectable science journals, as evidenced by the increasing attention given to retractions, there is an urgent need to reform the way in which authors, editors, and publishers conduct the first line of quality control, the peer review.

J. A. Teixeira, J. Dóbranszki, *Accountability in Research, Policy and Quality Assurance*, **2015**, *22*,22.

Postpublication peer review: A crucial tool

The current peer-review model used throughout science is not perfect (*1*). Whether it be the result of poor experimental design, accident, or academic misconduct, publication of irreproducible, incorrect, or fabricated results occurs more frequently than it should [check Retraction Watch for recent examples (*2*)]. This leads not only to a waste of precious time and financial resources as scientists try to replicate or build on flawed research but also to damage to the reputation of science and to much larger societal impacts (such as the loss of public trust in science and loss of federal funding).

An emerging online tool for combating these issues is postpublication peer review (PPPR). PPPR sites such as F1000, ResearchGate, PubPeer, and PubMed Commons, as well as *Science*'s own eLetters, provide environments for user comments and discussion and are responsible for catching flawed research that has slipped through traditional peer review (*3*). In addition to identifying fraudulent data, pointing out errors, and providing criticism (which generally take the form of negative comments), PPPR also enables positive feedback (such as verifying the reproducibility of results), which is valuable but is currently provided much less frequently (*4*). This disparity likely stems from the reality that overworked scientists do not have time for activities that provide little to no recognition (*5*). However, most scientists already participate in informal (offline) PPPR. We discuss the results of papers with our colleagues, present papers in group meetings, and critically analyze papers in journal clubs. With a little more effort, a formal record of our reviews (negative and positive) can be made online for the betterment of science.

There is a risk to publicly challenging the work of established scientists (in particular, younger scientists may face retribution), but it can be mitigated by providing feedback in a respectful, positive, and professional manner (*4*, *6*). These are risks that need to be taken. The scientific community needs to take action to maintain the integrity of our published work. With continued implementation and development (*7*), PPPR can become a new cornerstone in the self-correcting mechanism of science.

Science **2018**, *359,* 1225-1226

Alternatives

- Post-publication peer review (PPPR)
- Pre-submission peer review
- More reviewers (crowd review)
- Double-blind review
- Transparency

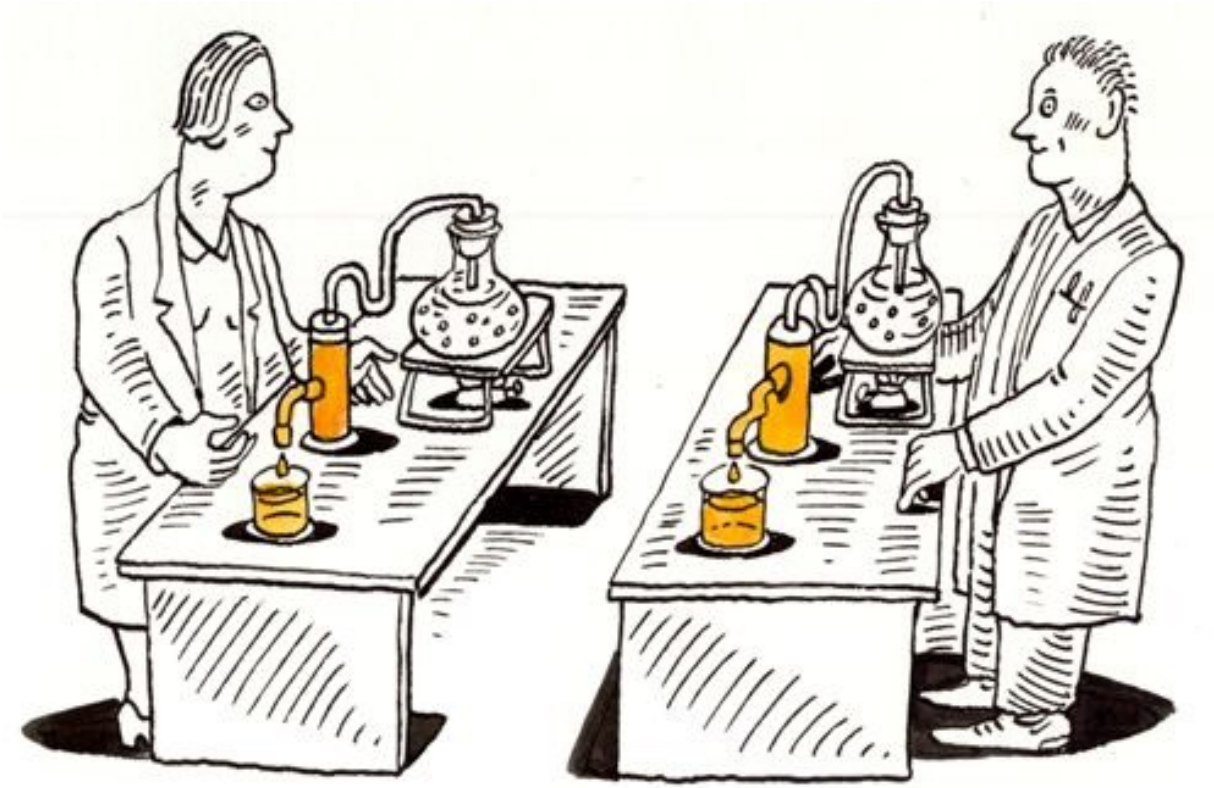
ROYAL SOCIETY OF CHEMISTRY

Introducing transparent peer review

Following successful experimentation in other RSC journals, *Chemical Science* has introduced transparent peer review. This lets authors choose to have the anonymous reviewers' comments, editor's decision letter and their own response published alongside their article.

By being more transparent about the decision-making process, we hope to build trust and showcase the fair, rigorous and inclusive peer review that we strive to deliver. In turn, this extra level of scrutiny will help us to ensure research integrity and reproducibility.

Reproducibility



displayr.com

What prevents reproducibility?

- *Incomplete experimental procedures described: A lack of access to methodological details, raw data, and research materials*
- *Poor research practices and experimental design*

All research results must be openly declared so other scientists may control and repeat the research.

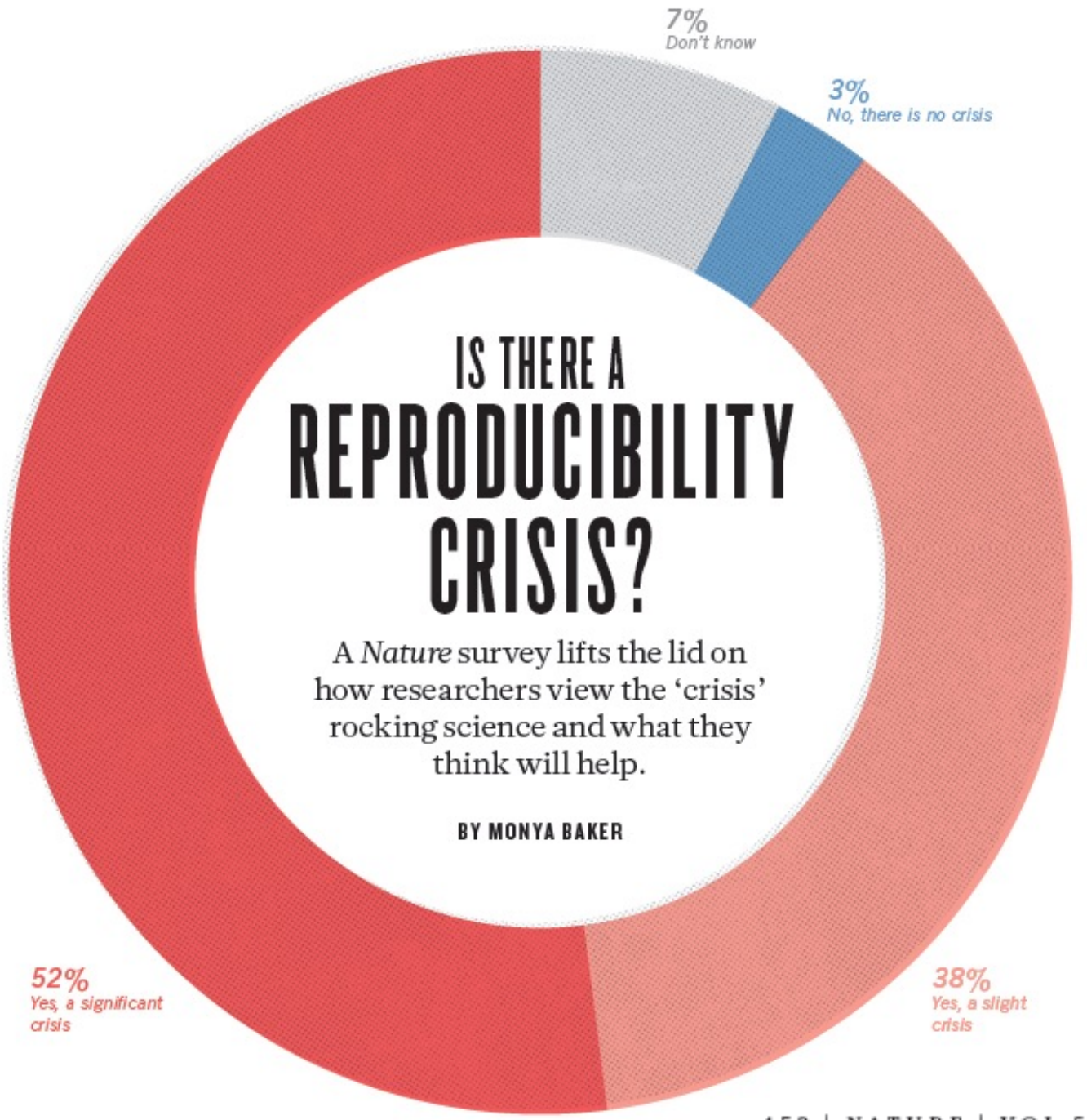
https://www-nature-com.focus.lib.kth.se/articles/d41586-023-02733-z - kolla

NATURE BRIEFING10 March 2023

Daily briefing: Spectacular new claim of room-temperature superconductivity

Superconductivity at near-ambient pressure raises eyebrows after a high-profile retraction.

The authors maintain that the raw data provide strong support for the main claims of the original paper. Nevertheless, we are of the opinion that these processing issues undermine confidence in the published magnetic susceptibility data as a whole, and we are accordingly retracting the paper. All authors disagree with this decision.



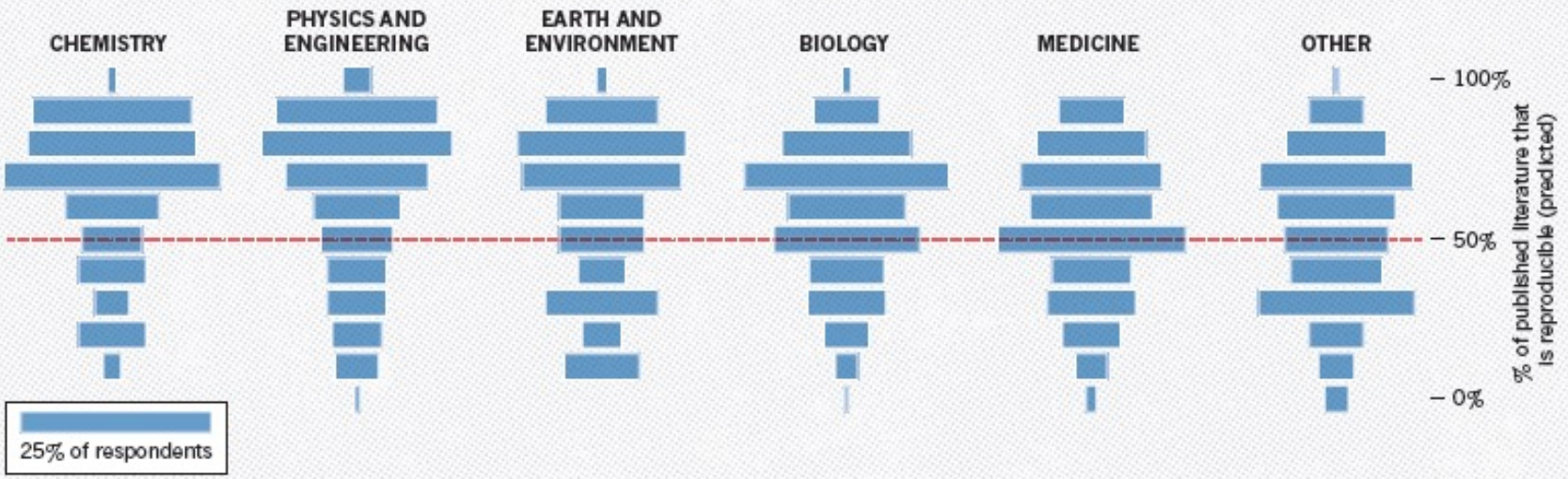
IS THERE A REPRODUCIBILITY CRISIS?

A *Nature* survey lifts the lid on how researchers view the 'crisis' rocking science and what they think will help.

BY MONYA BAKER

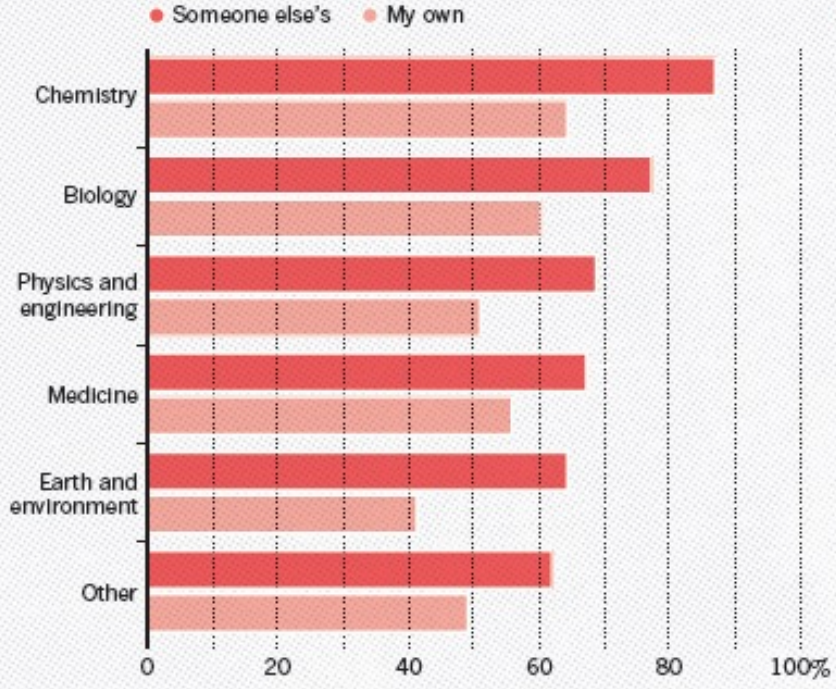
HOW MUCH PUBLISHED WORK IN YOUR FIELD IS REPRODUCIBLE?

Physicists and chemists were most confident in the literature.



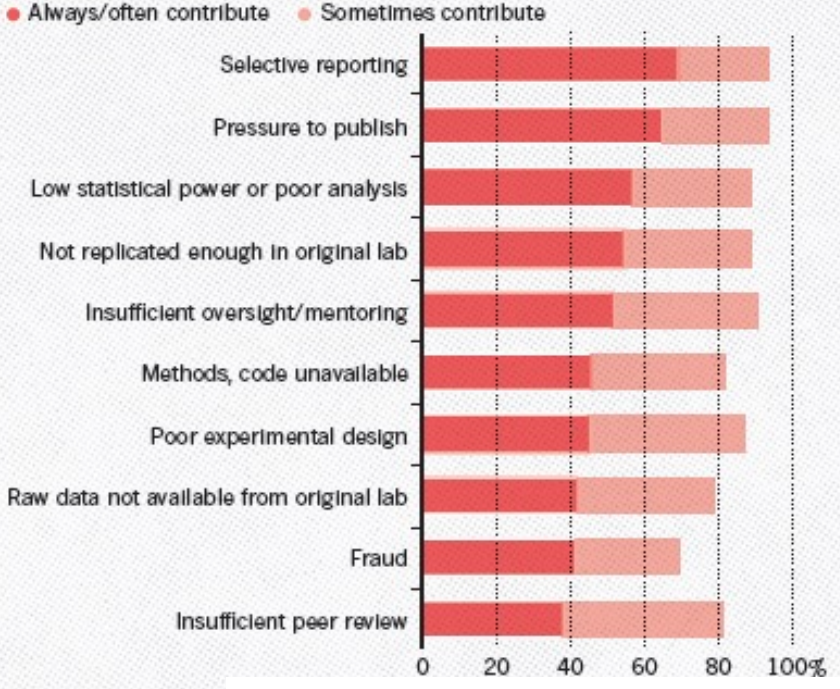
HAVE YOU FAILED TO REPRODUCE AN EXPERIMENT?

Most scientists have experienced failure to reproduce results.



WHAT FACTORS CONTRIBUTE TO IRREPRODUCIBLE RESEARCH?

Many top-rated factors relate to intense competition and time pressure.



Is science really facing a reproducibility crisis, and do we need it to?

Daniele Fanelli[a,1]

Edited by David B. Allison, Indiana University Bloomington, Bloomington, IN, and accepted by Editorial Board Member Susan T. Fiske November 3, 2017 (received for review June 30, 2017)

Efforts to improve the reproducibility and integrity of science are typically justified by a narrative of crisis, according to which most published results are unreliable due to growing problems with research and publication practices. This article provides an overview of recent evidence suggesting that this narrative is mistaken, and argues that a narrative of epochal changes and empowerment of scientists would be more accurate, inspiring, and compelling.

Correction

ChemComm

ROYAL SOCIETY OF CHEMISTRY

CORRECTION

View Article Online
View Journal | View Issue

Check for updates

Cite this: *Chem. Commun.*, 2022, 58, 4799

Correction: Enhanced ionic conduction in composite polymer electrolytes filled with plant biomass ''lignin''

An Editor should consider retracting an article if

- it is the result of fabrication or falsification
- it contains major errors
- it constitutes plagiarism
- the findings have been previously published
- copyright has been infringed or other legal issue
- it reports unethical results
- the review process has been compromised or manipulated
- the authors failed to disclose major competing interests

COPE: Committee on Publication Ethics

Received 22 July 2010
Revised 8 January 2011
28 May 2011
2 October 2011
19 October 2011
Accepted 20 October 2011

Influence of inter-disc space on the turbulent flow between two rotating discs

Maher Raddaoui
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Abstract

Purpose – Rotating flows are very important because they are found in industrial and domestic applications. For a good performance, it is important to dimension correctly the energy efficiency and the lifespan of the apparatuses while studying, for example, the influence of their physical and geometrical characteristics on the various hydrodynamic constraints, thermal and mechanics which they will support. The purpose of this paper is to describe experiments and a numerical study of the inter-disc space effects on the mean and the turbulent characteristics of a Von Karman isotherm steady flow between counter-rotating disks.

Design/methodology/approach – Experimental results are obtained by the laser Doppler anemometer technique performed at IRPHE (Institute of Research on the Phenomena out Equilibrium) in Marseille, France. The numerical predictions are based on one-point statistical modeling using a low Reynolds number second-order full stress transport closure (RSM model).

Findings – It was found that the level of radial velocity increases with the aspect ratio near to the axis of rotation but this phenomenon is reversed far from this zone; the level of tangential velocity, of turbulence kinetic energy and of the torsion are definitely higher for the largest aspect ratio. The best contribution of this work is, at the same time, the new experimental and numerical database giving the effect of the aspect ratio of the cavity on the intensity of turbulence for Von Karman flow between two counter rotating disks.

Research limitations/implications – The limitation of this work is that it concerns rotating flows with very high speeds because the phenomena of instability appear and the application of this model for cavities of forms is not obvious.

Practical implications – This work is of technological interest; it can be exploited by industrialists to optimize the operation of certain machines using this kind of flow. It can be exploited in the teaching of certain units of Masters courses: gathering experimental techniques; numerical methods; and theoretical knowledge.

Social implications – This work can also have a social interest where this kind of simulation can be generalized with other types of flows responsible for certain phenomena of society, such as the phenomenon of pollution. This work can have a direct impact on everyday life by the exploitation of the rotary flows, such as being a very clean and very economic means to separate the undesirable components present in certain fluid effluents.

Originality/value – The best contribution of this work is the new experimental and numerical database giving the effect of the aspect ratio of the cavity on the intensity of turbulence for Von Karman flow between two counter rotating disks.

Keywords inter-disc space, Von Karman flow, Laser Doppler anemometer, One point statistical modelling, Second order full stress transport closure, RSM model, Turbulent flow, Modelling

Paper type Research paper

Numerical and experimental works were under the direction, respectively, of researchers R. Schiestel and M.P Chauve, who contributed enormously in this work.

International Journal of Numerical Methods for Heat & Fluid Flow
Vol. 23 No. 4, 2013
pp. 662-691

0961-5539
DOI 10.1108/09615531311323809

Journal of Turbulence, 2015
Vol. 16, No. 12, 1161, http://dx.doi.org/10.1080/14685248.2015.1023035

Taylor & Francis
Taylor & Francis Group

Statement of Retraction

The following article is being retracted from publication in the *Journal of Turbulence*:

"Modelling and numerical simulation of baffles height effect on a Von Karman turbulent flow" by Maher Raddaoui, Volume 15, Issue 12, 2014, pp. 807-832, DOI: 10.1080/14685248.2014.935856

http://www.tandfonline.com/doi/full/10.1080/14685248.2014.935856

We were made aware that sections of this article are substantially similar to sections of an article published previously published by the same author:

"Influence of inter-disc space on the turbulent flow between two rotating discs" by Maher Raddaoui, *International Journal of Numerical Methods for Heat & Fluid Flow*, Volume 23, Issue 4, pp. 662-691, DOI: 10.1108/09615531311323809

http://www.emeraldinsight.com/doi/abs/10.1108/09615531311323809?journalCode=hff

The uppermost graph of Figure 4 was also found to have been reproduced without reference to the following thesis, in which it also appears:

Sébastien Poncet, 2005, Écoulements de type rotor-stator soumis à un flux axial: de Batchelor à Stewartson.

https://tel.archives-ouvertes.fr/tel-00010993/

This action constitutes a breach of warranties made by the author with respect to originality and of our *policy on publishing ethics and integrity*. We note we received, peer-reviewed, accepted, and published the article in good faith based on these warranties.

We have therefore taken the decision to retract the paper.

The retracted article will remain online to maintain the scholarly record, but it will be digitally watermarked on each page as 'retracted'.

Journal of Turbulence, 2014
Vol. 15, No. 12, 807–832, http://dx.doi.org/10.1080/14685248.2014.935856

Modelling and numerical simulation of baffles height effect on a Von Karman turbulent flow

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Materials, Energy and Renewable Energy Unit, Faculty of Sciences of Gafsa, University of Gafsa, Gafsa, Tunisia

(*Received 15 February 2013; accepted 11 June 2014*)

Von Karman flows generated by the movement of two contra-rotating discs enveloping a fixed cylinder are an important source of turbulence, especially if they are associated with some tools such as rotating baffles. This work is to model the effect of the baffles height on the mean and turbulent quantities of a turbulent Von Karman flow using an experimental study and a numerical simulation through a stationary two-dimensional Reynolds-Averaged Navier Stokes (RANS-2D) axisymmetric model. The experimental results are obtained by laser Doppler anemometry. The numerical simulation is based on one-point statistical modelling using a low Reynolds number second-order full stress transport closure (Reynolds Stress Model [RSM]). The effect of baffles height is modelled by a source term, which is added only to the equation of mean tangential velocity. The comparison with experiments provides confidence of this modelling technique. Simulations reveal that the height of baffle is a very important parameter which affects both mean and turbulence quantities. The originality of this work is essentially the development of correlations between certain characteristics of the flow and the baffles height showing then that this parameter is an interesting tool which can guide both the level and the structure of turbulence in Von Karman flows.

Keywords: Von Karman flows; turbulence; rotating baffles; laser Doppler anemometry (LDA); RSM

1. Introduction

1.1. *Former work*

The rotating flow, especially Von Karman's, generated by the movement of two contra-rotating discs enveloping a fixed cylinder is important for many industrial devices such in gas turbine, aeroengines, etc. It is often used for studying fundamental aspects of developed turbulence, especially the magneto-hydro-dynamic turbulence. To generate a fairly high level of turbulence with no negative effect on the flow, some parameters are used, for example, the placement of baffles on the walls of the cavity. To take advantage of these tools, it will be necessary to model the effect of these baffles on different flows. The present study suggests modelling and numerical simulation of the effect of baffles height on the different characteristics of a Von Karman flow, especially turbulent quantities. To begin this study, it is interesting to recall previous numerical and experimental works treating rotating

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J Mater Sci (2008) 43:422
DOI 10.1007/s10853-007-2183-8

ERRATUM

Corrigendum

C. Barry Carter

Published online: 9 October 2007

Corrigendum to: J Mater Sci
DOI 10.1007/s10853-006-1486-5

It has come to our notice that a paper by entitled *Determination of dopant of ceria system by density functional theory* which was 'authored' by Muthukkumaran et al. [1] and was published in the Journal of Materials Science is essentially a reproduction of a paper entitled *Optimization of ionic conductivity in doped ceria* which was authored by Andersson et al. [2] and was published in Proceedings of the National Academy of Science.

There is no doubt that the paper by Andersson is the original work and that the paper by Muthukkumaran et al. does not just plagiarize the results presented in the PNAS paper but actually copies most of it word for word.

The Editors and Publisher of Journal of Materials Science have apologized to the authors and publishers of the PNAS article and are thoroughly investigating the origin of the J Mater Sci article to determine who was complicit in the fabrication. We are in contact with officials at Anna University and the Indira Gandhi Centre for Atomic Research. A report of this investigation will be published in an Editorial when it is completed.

1. Muthukkumaran, K., Bokalawela, R., Mathews, T. and Selladurai, S., J Mater Sci (2007) 42:7461–7466.
2. Andersson, D.A., Simak, S.I., Skorodumova, N.V., Abrikosov, I.A. and Johansson, B., PNAS (2006) 103:3518–3521.

Paper published 2007; Correction 2008; Retraction 2018

Following detailed consultation with the Editor-in-Chief, the publisher has retracted this article, since it plagiarizes a paper entitled “Optimization of ionic conductivity in doped ceria” which was authored by D. A. Andersson, S.I. Simak, N.V. Skorodumova, I.A. Abrikosov, and B. Johansson, published in Proceedings of the National Academy of Science in 2006 103:3518–3521.

J Mater Sci (2007) 42:7461–7466
DOI 10.1007/s10853-006-1486-5

Determination of dopant of ceria system by density functional theory

K. Muthukkumaran · Roshan Bokalawela · Tom Mathews · S. Selladurai

Received: 6 September 2006 / Accepted: 26 December 2006 / Published online: 18 May 2007

Abstract Oxides with the cubic fluorite structure, e.g., ceria (CeO_2), are known to be good solid electrolytes when they are doped with cations of lower valence than the host cations. The high ionic conductivity of doped ceria makes it an attractive electrolyte for solid oxide fuel cells, whose prospects as an environmentally friendly power source are very promising. In these electrolytes, the current is carried by oxygen ions that are transported by oxygen vacancies present to compensate for the lower charge of the dopant cations. Ionic conductivity in ceria is closely related to oxygen-vacancy formation and migration properties. A clear physical picture of the connection between the choice of a dopant and the improvement of ionic conductivity in ceria is still lacking. Here we present quantum-mechanical first-principles study of the influence of different trivalent impurities on these properties. Our results reveal a remarkable correspondence between vacancy properties at the atomic level and the macroscopic ionic conductivity. The key parameters comprise migration barriers for bulk diffusion and vacancy–dopant interactions, represented by association (binding) energies of vacancy–dopant clusters. The interactions can be divided into repulsive elastic and attractive electronic parts. In the optimal electrolyte, these parts should balance. This finding offers a simple and clear way to narrow the search for superior dopants and combinations of dopants. The ideal dopant should have an effective atomic number between 61 (Pm) and 62 (Sm), and we elaborate that combinations of Nd/Sm and Pr/Gd show enhanced ionic conductivity, as compared with that for each element separately.

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Introduction

Materials providing high conductivity of oxygen ions are urged by a number of important technological applications, such as oxygen sensors and solid oxide fuel cells [1]. The latter are expected to become high-efficiency electrical power generators that enable clean energy production and support sustainable development [1, 2]. A standard electrolyte for solid oxide fuel cell applications is yttria-stabilized zirconia (YSZ) [1–5]. To increase the ionic conductivity of YSZ to a technologically useful level, high operating temperatures (~1,000 °C) are required. Lowering of the operating temperatures would considerably increase the applicability and competitiveness of solid oxide fuel cells. The ionic conductivity (σ) can be expressed as an exponential function of the activation energy for oxygen vacancy diffusion (E_a),

$$\sigma = \sigma_0/T \exp\left(\frac{-E_a}{K_B T}\right)$$

where T stands for temperature, K_B for the Boltzman constant, and (σ_0) for a temperature-independent prefactor. Materials with lower E_a will facilitate ionic conductivity at

10.1002/ejic.200701198

Removal: "Ultra-Simple Synthesis of Ordered Mesoporous γ-Alumina: High Thermal Stability and Catalytic Activity"

Le-Yue Li,[a] Quan Yuan,[b] Lei Liao,*[a] Chun-Hua Yan,[b] and Jun Chen[a]

Removal of Article from Wiley InterScience: The article "Ultra-Simple Synthesis of Ordered Mesoporous γ-Alumina: High Thermal Stability and Catalytic Activity", published online on September 4, 2007 in Wiley InterScience (www.interscience.wiley.com) (DOI: 10.1002/ejic.200700645), has been removed.

The article was fraudulently submitted to the *European Journal of Inorganic Chemistry* without the approval of the authors named on the article, using false authorship details. The article was stolen in draft form from the computer network of the authors Chun-Hua Yan and Quan Yuan. No person at Wuhan University was involved in any way in the incident.

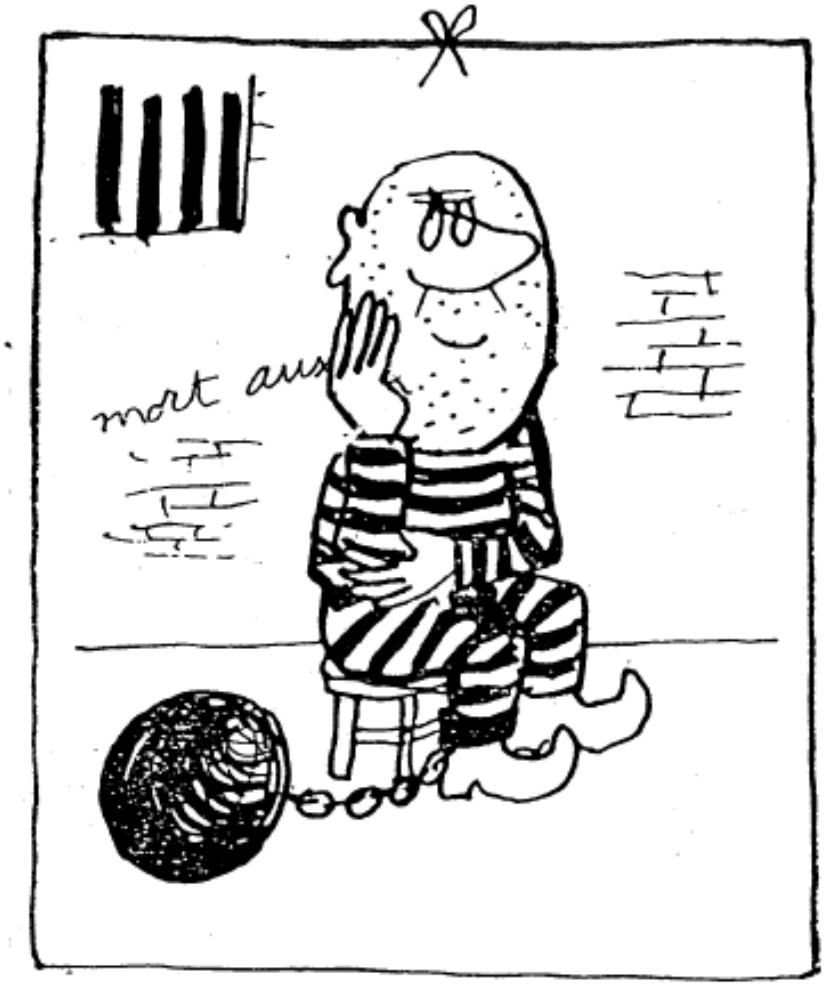
The Editor of the *European Journal of Inorganic Chemistry*, Dr. Karen Hindson, the authors and Wuhan University are satisfied with the severity of the punitive measures imposed upon the perpetrator of this fraud by the Ethics Commission of the College of Chemistry and Molecular Engineering of Peking University.

The Authors/The Editor

Received: October 31, 2007
Published Online: November 16, 2007

Article	Year of retraction	Citing Articles before retraction	Citing Articles after retraction	Total citations
1. Estruch R. et al. Primary Prevention of Cardiovascular Disease with a Mediterranean Diet. N Engl J Med April 4, 2013	2018	1895	371	2266
2. Fukuhara A. et al. Visfatin: A protein secreted by visceral fat that mimics the effects of insulin. SCIENCE, JAN 21, 2005	2007	228	1096	1324
3. Wakefield A. J. et al. Ileal-lymphoidnodular hyperplasia, non-specific colitis, and pervasive developmental disorder in children. LANCET, FEB 28 1998	2010	633	669	1302
4. Voinnet O. et al. An enhanced transient expression system in plants based on suppression of gene silencing by the p19 protein of tomato bushy stunt virus. PLANT JOURNAL, MAR 2003	2015	895	271	1166
5. Bolli, R. et al Cardiac stem cells in patients with ischaemic cardiomyopathy (SCIPIO): initial results of a randomised phase 1 trial. LANCET, NOV 2011	2019	904	22	926

Consequences



Les Proverbes de Siné (J.J Pauvert)

Sanctions

- *Journal:*
  - *Retract articles already in print*
  - *Ban from further publishing*
- *Research council*
  - *Suspend grants or contracts – temporarily or permanently (including future grants)*
  - *Ban from serving in evaluation panels*
- *Institution*
  - *Senior scientist will oversee work/manuscripts before submission*
  - *Ban for serving as PI/supervisor*
  - *Termination of employment*

REPORT ON PLAGIARISM

A paper entitled “Determination of dopant of ceria system by density functional theory," by K. Muthukkumaran, Roshan Bokalawela, Tom Mathews, and S. Selladurai; Published online: 18 May 2007 in J. Mater Sci 42, 7461 (2007) has attracted strong criticism of plagiarism from the authors of the paper entitled "Optimization of ionic conductivity in doped ceria," by David A. Andersson, Sergei I. Simak, Natalia V. Skorodumova, Igor A. Abrikosov, and Börje Johansson, PNAS, Vol 103, 3518 (2006)

Dr. Tom Mathews, Materials Science Division, IGCAR figures as one of the co-authors in the Journal of Materials Science paper. At IGCAR, which is a prestigious institute dealing with various aspects of science and technology of fast reactors and associated technologies, we are very keen to get to the truth of this sensitive and serious matter, as it involves the reputation of scientists and organizations.

Investigation at IGCAR
(Indira Gandhi Centre for Atomic Research)

Based on the information collected from different sources and allowing for uncertainties due inconsistencies in the narrations of the different authors, it cannot be concluded if Dr. Tom Mathews had an active role to play in the conduct of Plagiarism at any stage of the communication / publication of the paper under discussion. The investigating team, however, finds Dr. Tom Mathews certainly guilty of not withdrawing his name from a paper where he has neither contributed nor is in his field of expertise. Furthermore, Dr. Mathews could not have failed to notice that the science discussed in the paper and the language used, are not consistent with what one can expect from Muthukkumaran, based on earlier research efforts and contributions of the student, which Dr. Mathews was well aware.

Consequences

Taking these inputs into account, as also the credentials of Dr. Tom Mathews, and that the above episode is a singular case of aberration in his long scientific career, the IGCAR management has taken the following decisions: (1) Not allowing Dr. Tom Mathews to take any students under his guidance for a period of two years; (2) Scrutiny of his future publications by Head, Materials Science Division and Director, Metallurgy and Materials Group, before sending for publications and (3) Cautioning Dr. Tom Mathews that if plagiarism on any publication with him as an author is proven at any future date, he will be debarred from participating in scientific activities at IGCAR.

What are the consequences of scientific misconduct?
Specialists in science ethics examine the punishments for scientific …

by Yun Xie - Aug 12, 2008 2:48pm CET

What happens after a scientist has been found guilty of misconduct such as plagiarism, data manipulation, or fabrication of results? Does a guilty verdict mean permanent exile from the scientific community, or is there room for forgiveness? In an attempt to answer that question, Barbara Redman and Jon Merz examined the records of scientists who were officially found guilty of misconduct by the U.S. Office of Research Integrity (ORI) between January 1994 and December 2001.

During that period, the ORI found 106 people guilty of misconduct; excluding students and research fellows, that total contained 43 scientists with established careers. Out of those 43, 17 only had one infraction, while the rest committed multiple acts of misconduct. Redman and Merz chose to focus on those 43 scientists because they wanted to see how a guilty verdict affected those who were already a recognized part of the science community, not those who were still seeking acceptance.

An obvious measure of success in science is a person's publication record. From available PubMed records, Merz and Redman found that 37 of the scientists published an average of 2.1 papers per year before they were found guilty. After, they averaged 1.0 paper per year as of late 2003, with 12 publishing nothing at all. Thus, there was a significant decline in productivity, but a large portion of the scientists were still able to get their work accepted for publication.

In terms of official punishments, over half of them received 3-year debarments from obtaining grants and contracts, and all 43 of them were banned from Public Health Service advisory boards for an average of 3.5 years. Despite this, 16 out of the 37 traceable scientists were still employed in academia. Redman and Merz failed to breakdown the punishments by the type of misconduct committed, but they did note that falsification and fabrication were treated more severely than plagiarism.

Individual cases of scientific misconduct have varying degrees of malicious intent and harmful effects, so it is difficult to say if these statistical results show whether the consequences were reasonable or fair. The total fallout from a guilty sentence may not even be measureable with statistical analysis. After all, there are penalties that cannot be easily quantified such as relationships with colleagues and friends, loss of self-respect, and general stress levels.

Science, 2008. DOI: 10.1126/science.1158052

The financial costs of misconduct

- There are direct and indirect financial costs associated with misconduct. A 2014 study of publications retracted because of serious misconduct calculated that their direct cost to the NIH was an average of $425k per article. The study also estimated that total NIH funding wasted on retracted papers between 1992 and 2012 was $1.67 billion. Another study that looked at the costs to an institution of investigation of a misconduct case, calculated that the direct cost of investigating a single misconduct case is approximately $500k, and that the total cost of all allegations reported to ORI in 2009 was about $110 million.
- These estimates do not include the opportunity costs of loss of trust/goodwill by the public and damage to the reputations of laboratories or institutions, nor the indirect costs of unproductive research by other scientists who have based their work on flawed data. Neither do these estimates include the indirect costs to society of misconduct, such as preventable illness or loss of life due to misinformation in the medical literature. An outbreak of measles in Wales in 2012, with 1,200 cases of the potentially fatal disease, was associated with non-vaccination of babies in the late 1990s because of the Wakefield scandal, and cost an estimated £470k.

Science Europe Briefing Paper:Research Integrity: What it Means, Why it Is Important and How we Might Protect it De c e m b e r 2015

Reporting

Bill Haney Law

Who should report misconduct?
And to whom should misconduct be reported?

Reporting

What do you do in the following situation? You discover that one of your older colleagues has faked experimental data in a minor publication without much scientific value. He is close to retirement. When you discuss the problem with him he starts crying and refers to the requirement of the dean of Department to publish at least one paper each year, otherwise he will not receive the faculty research funding and will have to teach 400 h per year. The man has a bad health and is not a good teacher.

What will you do?

Vad är fod forskningssed?
Synpunkter, riktlinjer och exempel
B Gustavsson, G Hermerén, B Petersson,
VRs rapportserie 2005

Reporting

I have been working on a research project funded by a large grant at my university for the past 3 years, but now I suspect that my supervisor, who initially got the grant, received it based on a series of papers in the past that actually have falsified data in them. I do have a really good bond with my supervisor, and want to fix this together, but don't know what steps I can best take. Should I confront her? I also don't know if she is aware that the data has been falsified, as someone else also worked on those papers. Moreover, I don't want to throw away three years of good research, because we did have some interesting findings.

Fischhoff et al. *Life Sciences, Society and Policy*, **2021**, https://doi.org/10.1186/s40504-020-00110-6

The Higher Education Act (Högskoleförordningen):

*“*A higher education institution that receives a complaint or becomes aware in some other way of suspected misconduct in research, artistic research or development work at the higher education institution shall investigate the suspicions.

The willingness to report

- Academic seniority: Researchers in junior positions less likely to report
  - Fear of negative consequences
  - Management's willingness to take action
  - Would not lead to any changes; certain individuals protected
    - Professors: 67% reported, 29% not reported
    - Assoc. professors: 37% reported, 53% not reported
    - Postdocs: 35% reported, 61% not reported
    - PhD students: 39% reported, 51% not reported
- Work contracts
  - Researchers with permanent positions report more often
    - Fear of negative career effects
    - Fear not to be taken seriously
- Gender
  - Little difference

Horbach, P. J. M.; Breit, E.; Halffman, W.; Mamelund, S.-E., *Science Eng. Ethics*, **2020**, *25*, 1595

What is reported, and by whom?

- FFP more likely to be reported than QRP
- Alleged culprits' close colleagues and peers are the most likely way of bringing misconduct to light
- Professors and associate professors confronted the culprits more often (26% and 24%) than postdocs (17%) and Ph.D. students/TAs (12%)
- Researchers in permanent positions report incidences of suspected misconduct twice as often as those in temporary positions

Horbach, P. J. M.; Breit, E.; Halffman, W.; Mamelund, S.-E., *Science Eng. Ethics*, **2020**, *25*, 1595

Was it reported?	Yes	No	Don't know	NA
Plagiarism (N = 60)	38 (63%)	14 (23%)	5 (8%)	3 (5%)
Authorship (N = 49)	16 (33%)	31 (63%)	0 (0%)	2 (4%)
Cherry picking (N = 28)	9 (32%)	18 (64%)	1 (4%)	0 (0%)
Falsification (N = 14)	6 (43%)	7 (50%)	0 (0%)	1 (7%)
Fabrication (N = 13)	11 (85%)	2 (15%)	0 (0%)	0 (0%)
Text recycling (N = 7)	5 (71%)	2 (29%)	0 (0%)	0 (0%)
Data manipulation (N = 5)	3 (40%)	2 (40%)	0 (0%)	0 (0%)

- plagiarism was the most commonly reported
- clear-cut cases of misbehavior are reported more often than nuanced cases

Horbach, P. J. M.; Breit, E.; Halffman, W.; Mamelund, S.-E., *Science Eng. Ethics*, **2020**, *25*, 1595

Action taken	%
Took some action to verify their suspicions of fraud or to remedy the situation	46
In alleged cases of scientific misconduct a disciplinary action was taken by the dean	32.4
Some authority was involved in a disciplinary action	20.5
I interfered to prevent it from happening	28.6
I reported it to a relevant person or organization	22.4
Confronted individual	55.5
Reported to supervisor	36.4
Reported to Institutional Review Board	12.1
Discussed with colleagues	36.4
Suspected misconduct was reported by the survey respondent	24.4
Suspected misconduct was reported by someone else	33.3

D. Fanelli: "How Many Scientists Fabricate and Falsify Research? A Systematic Review and Meta-Analysis of Survey Data", PLoS ONE **2009**, *4*, 1–11.

Did anything change?	Constructive consequences	Negative consequences	No change	Don't know	NA
Plagiarism (N = 60)	20 (33%)	3 (5%)	19 (32%)	10 (17%)	8 (13%)
Cherry picking (N = 28)	8 (29%)	0 (0%)	14 (50%)	0 (0%)	6 (21%)
Falsification (N = 14)	7 (50%)	0 (0%)	6 (43%)	0 (0%)	1 (7%)
Fabrication (N = 13)	6 (46%)	3 (23%)	4 (31%)	0 (0%)	0 (0%)
Authorship (N = 49)	4 (8%)	1 (2%)	35 (71%)	2 (4%)	7 (14%)
Text recycling (N = 7)	3 (43%)	1 (14%)	2 (29%)	0 (0%)	1 (14%)
Data Manipulation (N = 5)	2 (40%)	0 (0%)	3 (60%)	0 (0%)	0 (0%)

- plagiarism has the highest number of constructive consequences

Horbach, P. J. M.; Breit, E.; Halffman, W.; Mamelund, S.-E., *Science Eng. Ethics*, **2020**, *25*, 1595

The lack of reporting of ‘grey’ forms of misconduct is due to the crucial negative effect of such forms of misconduct being potentially continued. In other words, not only are such forms of misconduct per definition difficult to assess normatively, they are also likely to be more unspoken and implied in research. This involves the risk of such practices becoming embedded and institutionalized rather than openly discussed and reflected upon.

Horbach, P. J. M.; Breit, E.; Halffman, W.; Mamelund, S.-E., *Science Eng. Ethics*, **2020**, *25*, 1595

How do you act in the following situation? You have promised to be part of the evaluation committee for a PhD thesis in an area somewhat remote from your own. When you prepare your discussion of the thesis the evening before the dissertation reading a review article, written by an international authority, you happen to discover that five lines in the introduction of the thesis are identical to a paragraph of. the review. You have no time to talk to the supervisor of the student before the meeting of the board, after the dissertation. The supervisor Is surprised to hear what you say, but says that the rest of the thesis is OK.

What do you do?

Vad är fod forskningssed?
Synpunkter, riktlinjer och exempel
B Gustavsson, G Hermerén, B Petersson,
VRs rapportserie 2005

The National Board for Assessment of Research Misconduct (NPOF)

In most countries, universities and research institutions deal with misconduct allegations in-house, which can lead to some cases not being handled fairly or transparently. Sweden followed Denmark — the first country in the world to set up such an agency, in 2017 — in a bid to shake up research-fraud probes.

Nature 13

September 2021

The National Board for Assessment of Research Misconduct (NPOF)

Researchers have brought 139 cases (March 2023) to the organization — called the National Board for Assessment of Research Misconduct (NPOF) and based in Uppsala, 56 by institutions, 83 by individuals.

So far investigations into 71 of the 139 cases have been concluded, with 31 judged to be outside the agency's remit; 14 researchers were found guilty of misconduct.

Last month, the researcher at the centre of the agency's first guilty verdict won her court appeal against the decision.

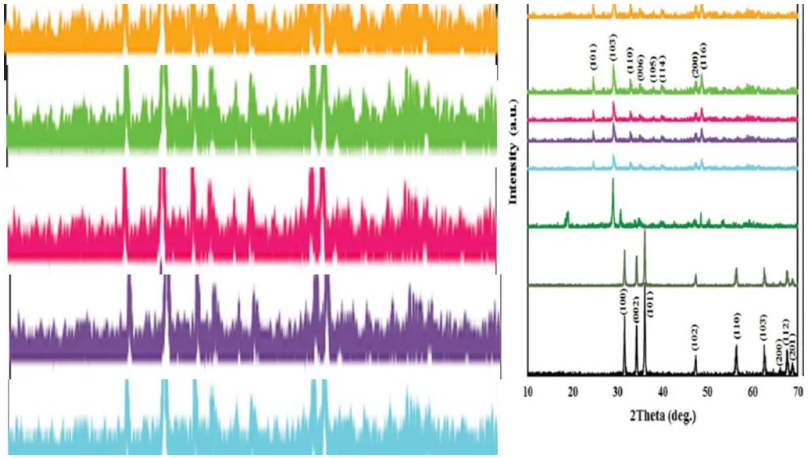
Misconduct in reseach: Fabrication

Suspected fabricated XRD spectra in 4 articles.

Case handed over from LiU to The National Board for Assessment of Research Misconduct after investigation by internal expert.

The Board decided, based on a statement by another expert and in agreement with the internal expert, that Mazhar Ali Abbasi, Rania Elhadi Adam. Jesper Edberg, Sami Elhag, Mushtaque Hussain, Zafar Hussain Ibupoto, Azam Khan, Elfatih Mustafa Omer Nour, Mahsa Pirhashemi, Galia Pozina, Aneela Tahira and Magnus Willander **are guilty of misconduct in research** in the articles below.

Willander argued that spectra had been mixed up by mistake. The Board did not regard this as a reasonable explanation.



……M. Willander, O. Nur, *ACS Advances*, **2018**, *8*, 37480

Leonid Schneider, on research integrity, biomedical ethics and academic publishing: ”The impressive thing: it would have been too easy to blame some junior researchers alone, all of them foreigners. Probably every single national authority, certainly the ORI in USA, would have done that, while whitewashing the professors as victims of scheming students or postdocs. But not the Swedish NPOF: every one of the LiU-affiliated authors gets the same responsibility.”

https://forbetterscience.com/2020/12/23/omer-nour-and-magnus-willander-guilty-of-research-misconduct/

Research institutions need clear, well-communicated rules that define irresponsible conduct and ensure that all researchers, research staff, and students are trained in the application of these rules to research.

Ethical policy for KTH

Research at KTH should:

- be published and reported in such a manner that the efforts of colleagues are recognised in relation to their scientific contribution,
- be conducted without tolerance for plagiarism, research falsification, improper influence and other improprieties,
- reflect over the social and environmental consequences of research results, and be conducted in a responsible manner in relation to these,
- be carried out with respect for the individual's autonomy and personal integrity,
- fulfil strictly imposed requirements on sparing animals from unnecessary suffering

You shall

- tell the truth about your research
- consciously review and report the basic premises of your studies
- openly account for your methods and results
- openly account for commercial interests and other associations
- not make unauthorised use of the research results of others
- keep your research organized, for instance through documentation and archiving
- be fair in your judgement of others' research

A researcher's responsibility

- Every researcher has a responsibility to contribute to the development and dissemination of high standards and good practices, and every researcher has an obligation to maintain the integrity of research.
- Researchers bear the ultimate responsibility for ensuring the integrity of research data they generated or whose generation they supervised.
- Researchers have a responsibility both to maintain high standards of responsible conduct and to take appropriate actions when they witness or suspect irresponsible conduct.

As Richard Feynman said, “The first principle [of science] is that you must not fool yourself – and you are the easiest person to fool.”

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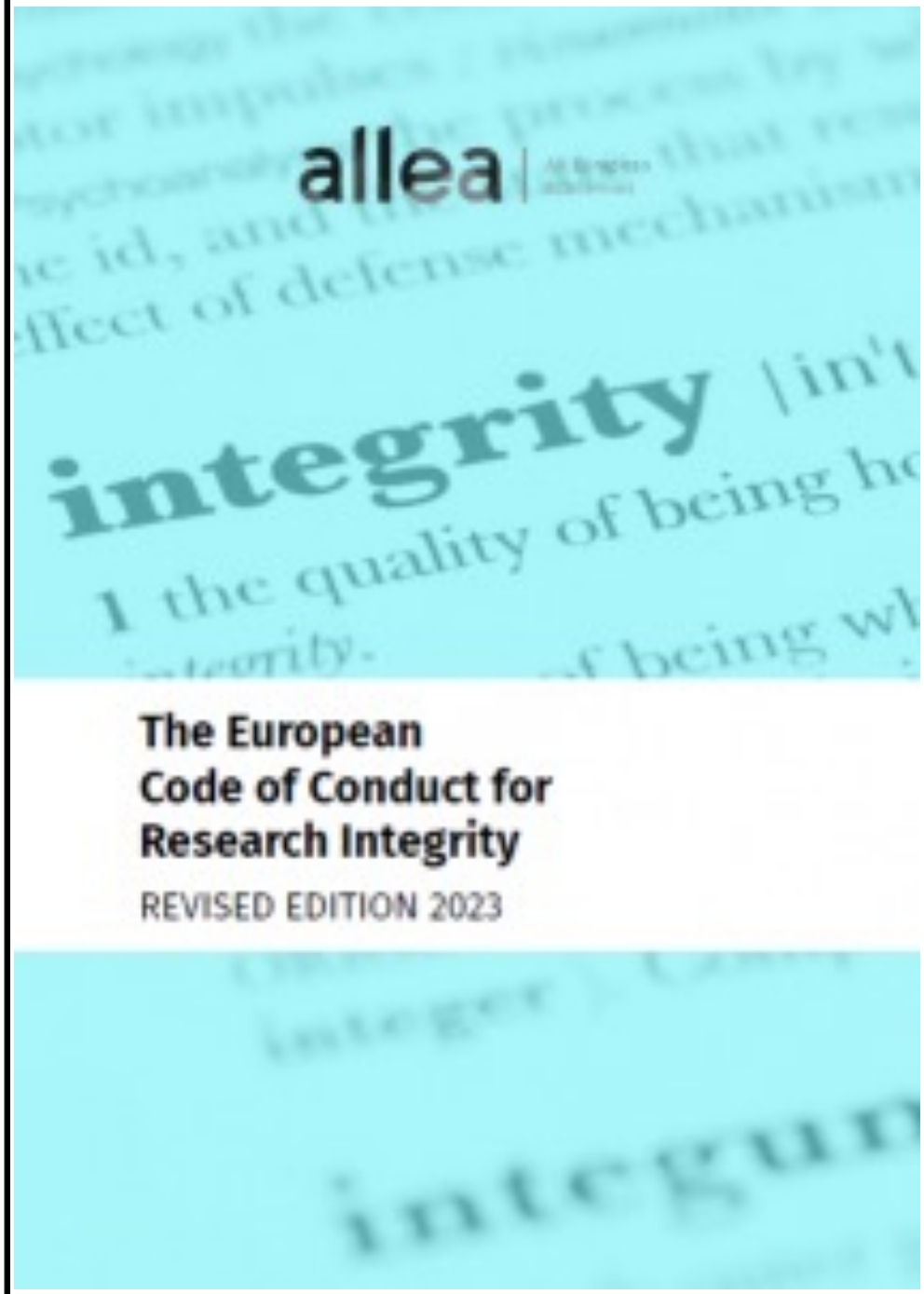
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REVISED EDITION 2023

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