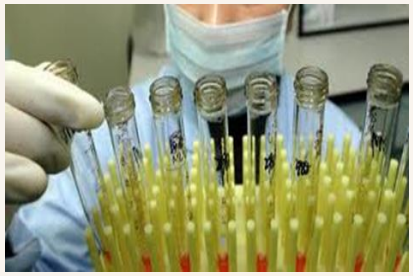
Research integrity in an increasingly competitive and complex world: issues, problems, solutions




Irene Hames, PhD, FRSB @irenehames

Editorial and Publishing Consultant

Council Member, COPE (Committee on Publication Ethics), 2010-13

ORCID : http://orcid.org/0000-0002-3806-8786

STM Seminar, London, 3 December 2015

Integrity:

The quality of being honest and having strong moral principles

(Oxforddictionaries.com)

Singapore Statement on Research Integrity (2010)

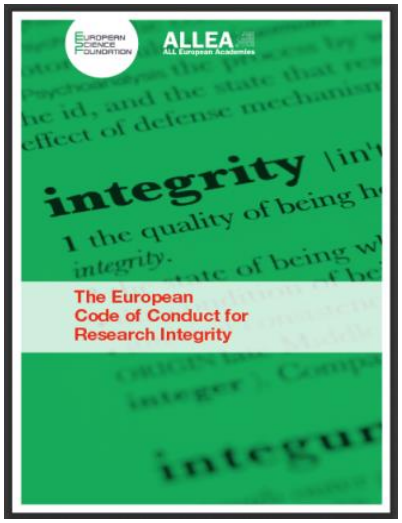
Honesty

Accountability

Professional courtesy & fairness

Good stewardship

European Code of Conduct for Research Integrity (2011)



Honesty

Reliability

Objectivity

Impartiality & independence

Openness & accessibility

Duty of care

Fairness

Responsibility for researchers of the future

Responsible conduct of research (RCR)

- Can be a challenge to understand and put into practice
- No universal way to carry out research, norms and practices can vary, from field to field, country to country
- Basic principles not always known by researchers
- Build a ‘culture of research integrity’

What is ‘research misconduct’?

Research misconduct means fabrication, falsification, or plagiarism in proposing, performing, or reviewing research, or in reporting research results.

Research misconduct does not include honest error or differences of opinion.

(Office of Research Integrity, US: http://ori.hhs.gov/)

- Research integrity/ethics problems and potential misconduct often only come to light after submission/publication
- Range - '*questionable research practices'* to serious fraud

Incidence?

Fanelli (2009), *PLOS ONE*, **4**(5), e5738

- Looked at fabrication, falsification, and 'cooking' of data (behaviours that 'distort knowledge')
- Around 2% admitted to having done this at least once
- Up to a third admitted to other questionable research practices
- 14% knew of colleagues who had engaged in falsification, up to 72% for other questionable research practices

"Considering that these surveys ask sensitive questions … it appears likely that this is a conservative estimate of the true prevalence of scientific misconduct"

Increasing pressures on researchers?

"… and underlying these worries was yet another: that scientific articles have been hijacked away from their primary role of communicating scientific discovery to one of demonstrating academic activity."

Stephen Lock, '*A Difficult Balance. Editorial peer review in medicine*', Introduction to third impression, *BMJ*,1991, p.xi.

Nuffield Council on Bioethics, 2014

Science researchers in the UK

- Tempted or under pressure to compromise on research integrity and standards: 26%
- Aware of others feeling like this: 58%
- "*A higher proportion of respondents aged under 35 years (33 per cent) stated they had felt tempted or under pressure in comparison with those aged above 35 years (21 per cent).*"

"*there should be no such thing as a 'good result' only a good scientific question that is worth knowing the answer to*"

Chris Chambers

theguardian.com, 29 October 2015

US$50,000

Why we should be concerned about research misconduct

- Fabricated/falsified work goes on being cited
- Research is wrongly informed
- Waste of resources, human and financial
- Breaches in research integrity are damaging, to individuals, institutions, *and public trust*

‘Rogue scientist faked AIDS research funded with $19M in taxpayer money by spiking rabbit blood’

Daily Mail, 26 December 2013

‘Scientist falsified data for cancer research once described as ‘holy grail,’ feds say’

Washington Post, 9 November 2015

‘False positives: fraud and misconduct are threatening scientific research’

The Guardian, 13 September 2012

‘Cancer study patients ‘made up’’

BBC News online, 16 January 2006

Retraction Watch

Tracking retractions as a window into the scientific process

The Retraction Watch Leaderboard

with 14 comments

Who has the most retractions? Here's our unofficial list (see notes on methodology), which we'll update as more information comes to light:

1. Yoshitaka Fujii (total retractions: 183) Sources: Final report of investigating committee, our reporting
2. Joachim Boldt (94) Sources: Editors in chief statement, additional coverage
3. Peter Chen (60) Source: SAGE
4. Diederik Stapel (57) Source: Our cataloging
5. Adrian Maxim (48) Source: IEEE database
6. Hua Zhong (41) Source: Journal
7. Shigeaki Kato (36) Source: Our cataloging
8. Hendrik Schön (36) Sources: PubMed and Thomson Scientific
9. Hyung-In Moon (35) Source: Our cataloging
10. James Hunton (32.5, counting partial retraction as half) Source: Our cataloging
11. Naoki Mori (32) Source: PubMed, our cataloging
12. Tao Liu: (29) Source: Journal
13. Gideon Goldstein (26)
14. Scott Reuben (25)
15. Gilson Khang (22) Sources: WebCitation.org, WebCitation.org, journal
16. Friedhelm Herrmann (21)

Subscribe to Blog via Email

Join 11,381 other subscribers

Email Address

Subscribe

Pages

How you can support Retraction Watch

Meet the Retraction Watch staff

About Adam Marcus

About Ivan Oransky

The Center For Scientific Integrity

Board of Directors

The Retraction Watch FAQ, including comments policy

The Retraction Watch Transparency Index

The Retraction Watch Leaderboard

The Retraction Watch Store

Upcoming Retraction Watch

The personal tragedies

‘Stem cell scientist Haruko Obokata found guilty of misconduct’

The Guardian, 1 April 2014

‘Stem-cell scientists mourn loss of brain engineer: A famous name in regenerative medicine, Yoshiki Sasai was found dead on 5 August’

Nature News, 5 August 2014

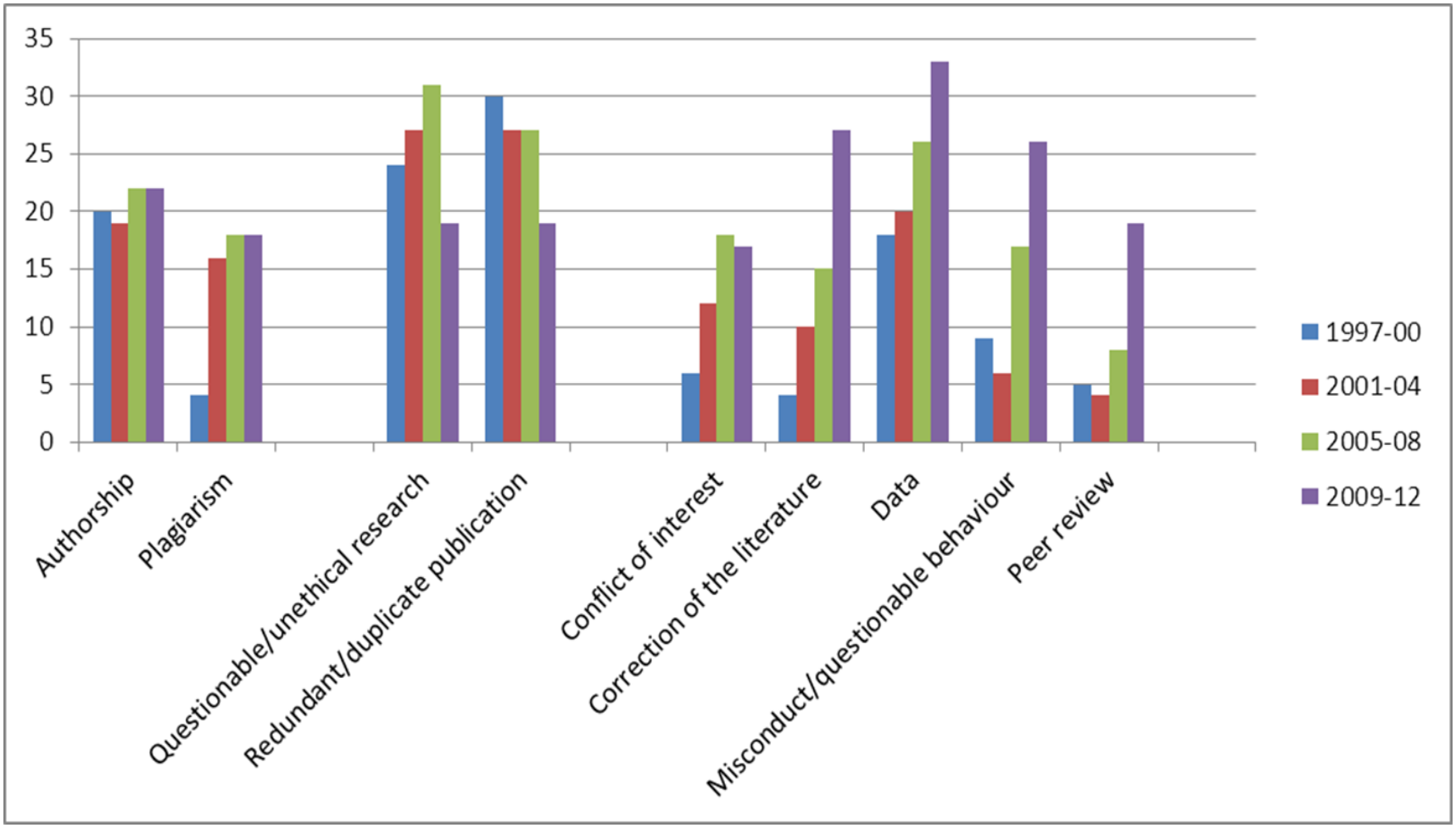
What sorts of problems are we seeing?

- COPE: http://publicationethics.org/

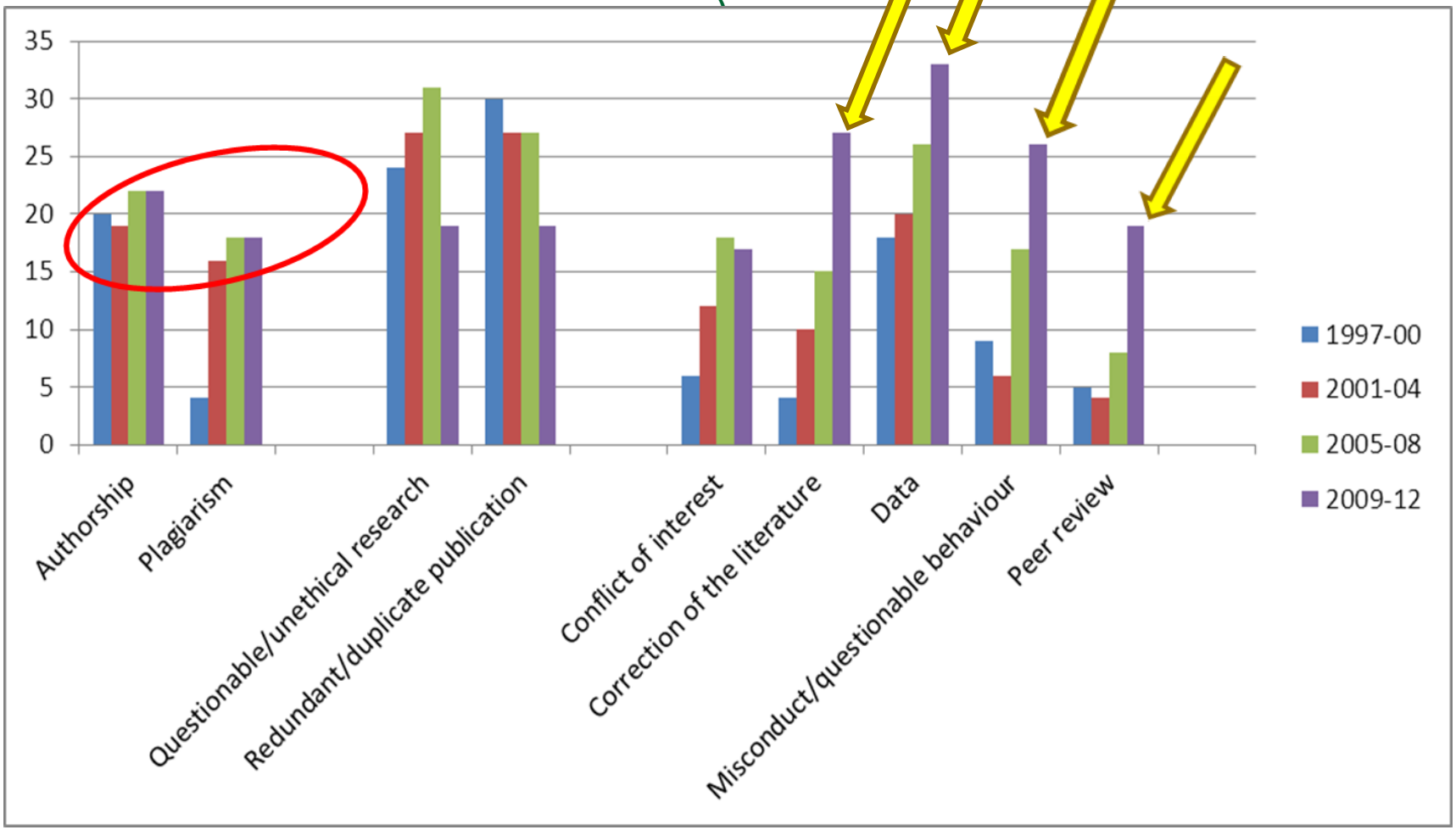
- Cases database, analysis

Classifications and Keywords indicate the topics discussed, not that a particular form of misconduct had occurred

COPE cases, 1997-2012, number per Classification (http://publicationethics.org/cope-case-taxonomy)



COPE cases, 1997-2012, number per Classification (http://publicationethics.org/cope-case-taxonomy)



Authorship

- Increasing numbers of authors

Credit: Wellcome Library, London, CC BY 4.0

ATLAS Experiment © 2014 CERN

Who did what? Accountability?

- Increasing interdisciplinary collaborations

Authorship

- Authorship for sale

" *uncovered a flourishing academic black market involving shady agencies, corrupt scientists, and compromised editors*"

('China's publication Bazaar', *Science*, Nov 2013, **342**, 1035-39)

… and papers (catalogue), and data (real or faked)

Plagiarism

- CrossCheck – when, how, by whom?
- Differences in what thought to be acceptable
- Confusion about: ‘self-plagiarism’(recycling); what is considered ‘prior publication’
- Editor/journal actions

Retraction Watch

Tracking retractions as

Should this engineering paper have been retracted?

with 26 comments

The journal *Safety Science* has retracted a 2013 paper by a group of engineers from Brazil who had published the article previously, albeit in a much abbreviated form, a year earlier.

What makes this case more than a straightforward matter of duplication/self-plagiarism is that the authors greatly expanded upon the earlier article. The initial paper also appeared in a conference proceedings — the 18th World Congress on Ergonomics – Designing a Sustainable Future — priority that, at least in the minds of some, doesn't really constitute a true publication.

Here's what the retraction notice has to say about the matter:

> This article has been retracted at the request of the Editor-in-Chief.
>
> A shorter version of this paper (about 50% different, it had 5106 words, while this paper has 10,788 words plus 5 original Figures) was submitted to a conference, whose proceedings were published as a special issue of the WORK journal [Work 41 (2012) 3069-3076. http://dx.doi.org/10.3233/WOR-2012-0565-3069]. When submitting the paper to the conference, authors did not noticed that copyright had been automatically granted to this journal. Thus, they did not know the short paper will be published when they submitted an extended version to Safety Science. The third author of the Safety Science paper (Dr. Éder Henriqson) was not co-author of the conference paper, and not aware of its publication in WORK.

We have seen cases in which journals have retracted abstracts from supplement issues. *Toxicology*, for example, yanked several last year.

Should this paper have been retracted?

No 91.34% (327 votes)

Yes 8.66% (31 votes)

Total Votes: 358

Like Share 0

Tweet

- New types of plagiarism and detection avoidance

Data

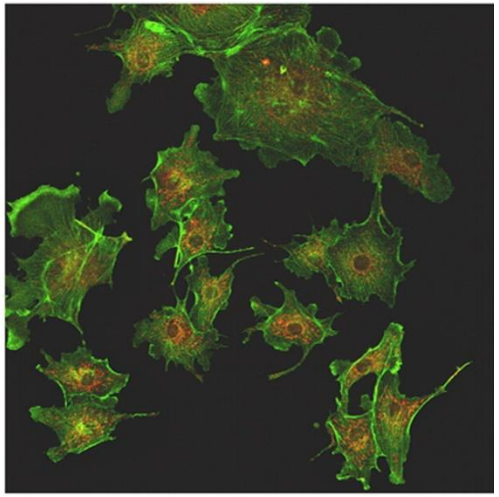
➢ Image manipulation

- Digital image processing software available and widely used
- Ignorance of permitted manipulation
- Intentional inappropriate manipulation
- Basic rules:
  - Any digital effect must be applied to the whole image, selective enhancement, movement, removal or introduction not allowed
  - Brightness and contrast adjustment shouldn't obscure, remove or misrepresent information in the original
  - Must be clear when data come from different sources
- Image checking

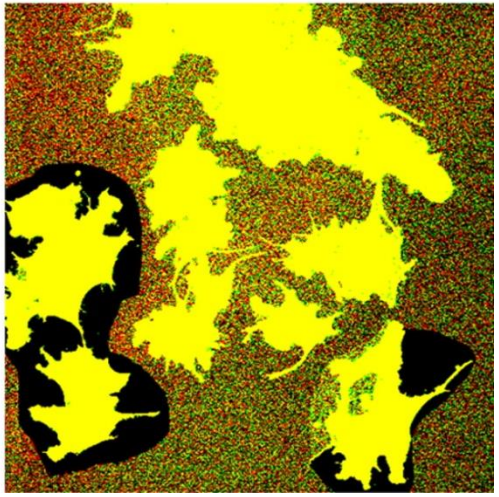
'*What's in a picture? The temptation of image manipulation*'

Rossner M , and Yamada K M *J Cell Biol* 2004;166:11-15

Manipulated image



Manipulation revealed by contrast adjustment



Data

➢ Unauthorised use

- Who owns the data? Any conditions imposed by funders, institutions, data sources? Publication rights?
- Obligations associated with data collection?

Montreal Statement on Research Integrity in Cross-Boundary Research Collaborations

Preamble. Research collaborations that cross national, institutional, disciplinary and sector boundaries are important to the advancement of knowledge worldwide. Such collaborations present special challenges for the responsible conduct of research, because they may involve substantial differences in regulatory and legal systems, organizational and funding structures, research

16. Data, Intellectual Property and Research Records.
Collaborating partners should come to agreement, at the outset and later as needed, on the use, management, sharing and ownership of data, intellectual property, and research records.

- 'Personal communications'

Peer review

‘Fake reviewer’ cases

Retraction Watch

Tracking retract process

Retraction count grows to 35 for scientist who faked emails to do his own peer review

with 9 comments

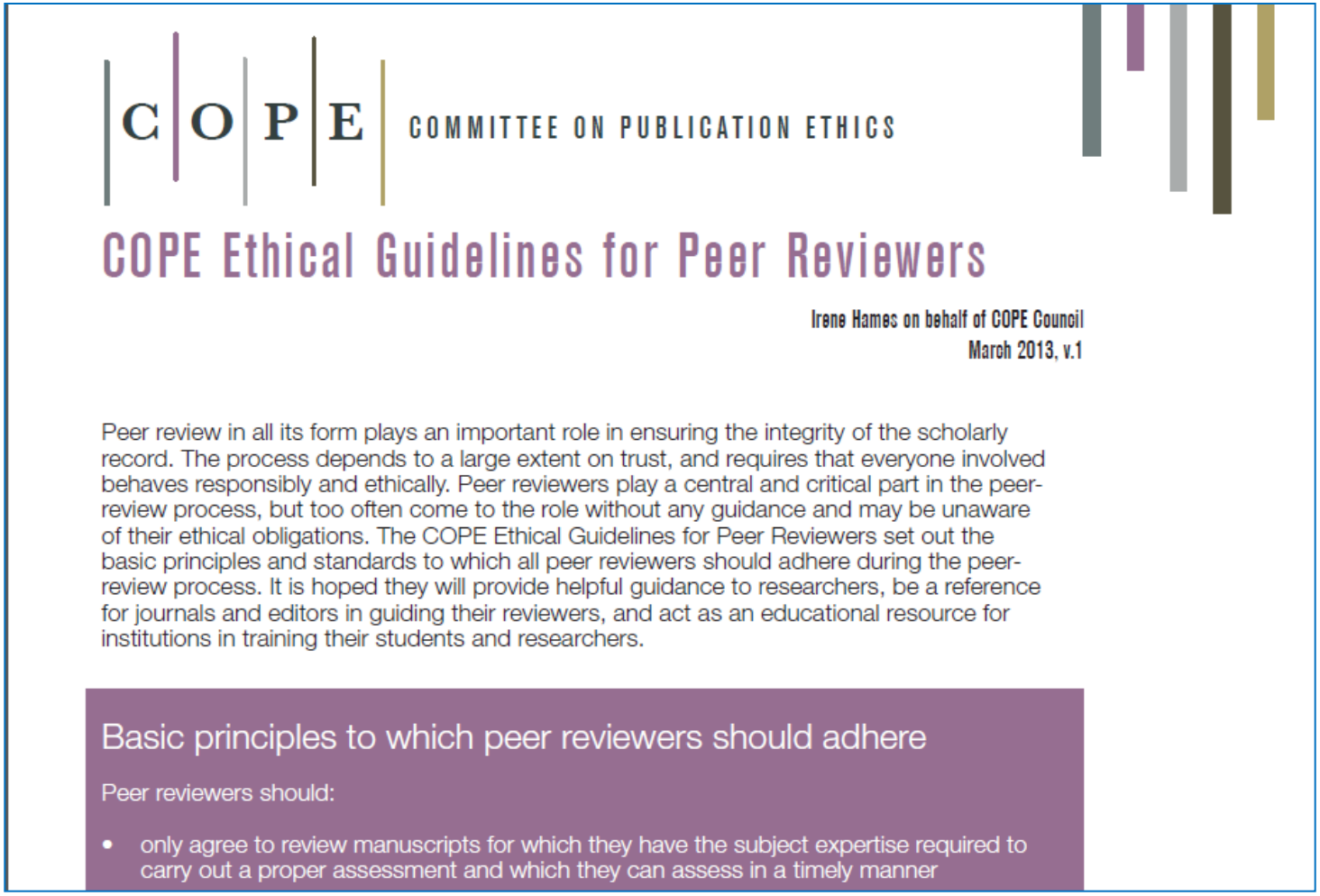
Hyung-In Moon, the South Korean plant compound researcher who made up email addresses so he could do his own peer review, is now up to 35 retractions.

The four new retractions are of the papers in the *Journal of Enzyme Inhibition and Medicinal Chemistry* that initially led to suspicions when all the reviews came back within 24 hours. Here’s the notice, which includes the same language as Moon’s 24 other retractions of studies published in Informa Healthcare journals:

Hyung-In Moon

> The corresponding author and publisher hereby retract the following articles from publication in *Journal of Enzyme Inhibition and Medicinal Chemistry*.
>
> Effect of betaine on the hepatic damage from orotic acid-induced fatty liver development in rats
>
> Jae-Young Cha, Hyeong-Soo Kim, Hyung-In Moon, and Young-Su Cho
>
> *Journal of Enzyme Inhibition and Medicinal Chemistry* [epub ahead of print], 2012, doi: 10.3109/14756366.2011.641014

‘For his part, Moon acknowledged suggesting his friends and colleagues as reviewers, telling Retraction Watch that the results “can be mistaken for fake reviews.” But he said it wasn’t only his mistake: The editors, Moon said, invited those reviews without confirming the identity of the reviewers.’



'COPE's new Ethical Guidelines for Peer Reviewers: background, issues, and evolution', ISMTE, *EON* May 2013, Vol6, issue4, http://c.ymcdn.com/sites/www.ismte.org/resource/resmgr/files/hames_article.pdf

ORCID

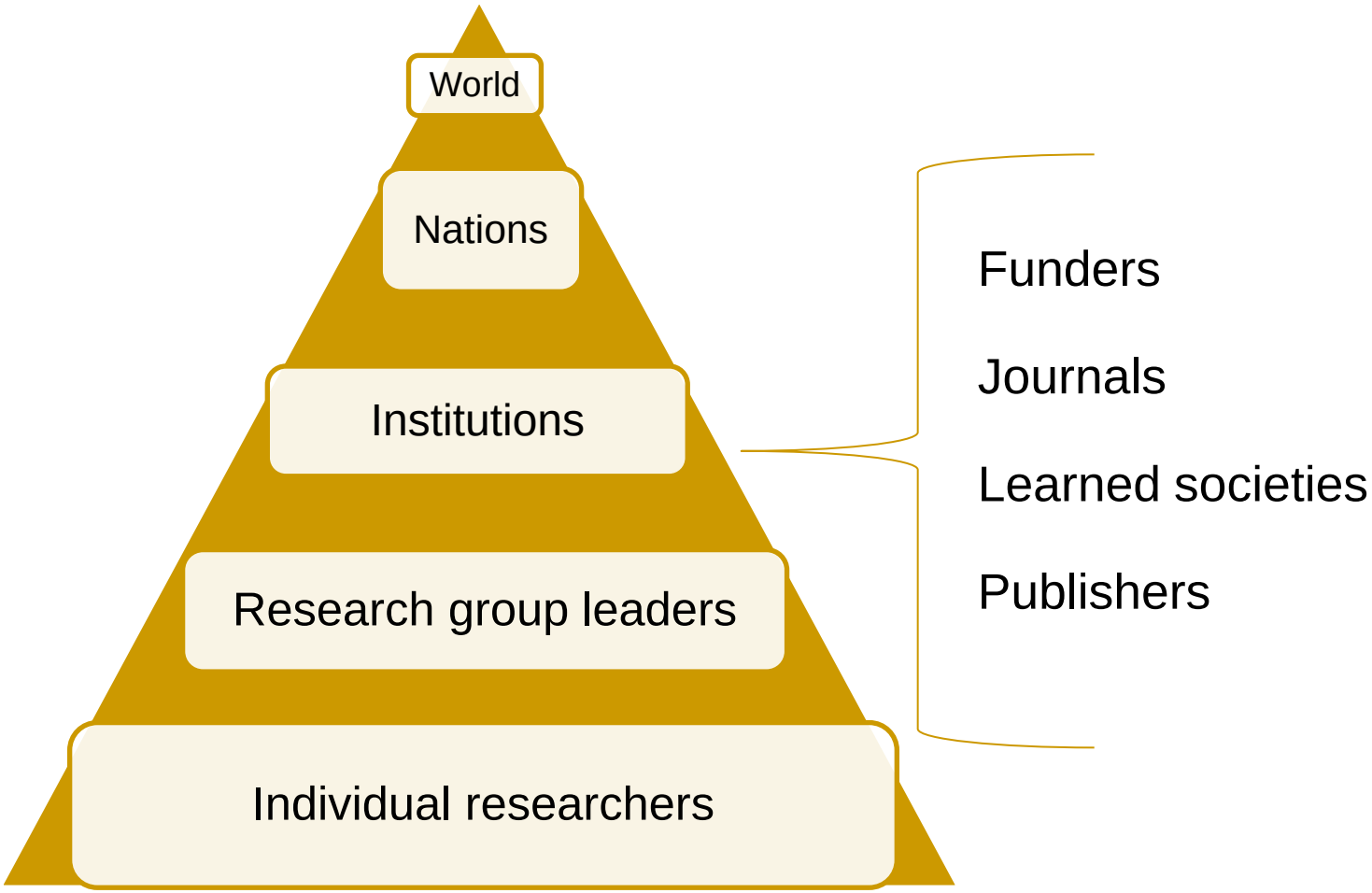
Open Researcher and Contributor iD
(http://about.orcid.org/about)

- a permanent identifier for researchers and scholars
- links research activities and outputs to identifiers
- automates linkages to 'research objects'

Since 2012 …

- More cases of authors submitting fake reviewer emails
- Editors creating fake reviewer accounts (to submit favourable reports)
- Third-party services suggesting fake reviewers
- October 2015, ~260 retractions because of fake peer review (see *Retraction Watch* ‘faked emails’ category)

The pyramid of research integrity



Montreal Statement on Research Integrity in Cross-Boundary Research Collaborations

Preamble. Research collaborations that cross national, institutional, disciplinary and sector boundaries are important to the advancement of knowledge worldwide. Such collaborations present special challenges for the responsible conduct of research, because they may involve substantial differences in regulatory and legal systems, organizational and funding structures, research cultures, and approaches to training. It is critically important, therefore, that researchers be aware of and able to address such differences, as well as issues related to integrity that might arise in cross-boundary research collaborations. Researchers should adhere to the professional responsibilities set forth in the *Singapore Statement on Research Integrity*. In addition, the following responsibilities are particularly relevant to collaborating partners at the individual and institutional levels and fundamental to the integrity of collaborative research. Fostering the integrity of collaborative research is the responsibility of all individual and institutional partners.

Responsibilities of Individual and Institutional Partners in Cross-Boundary Research Collaborations

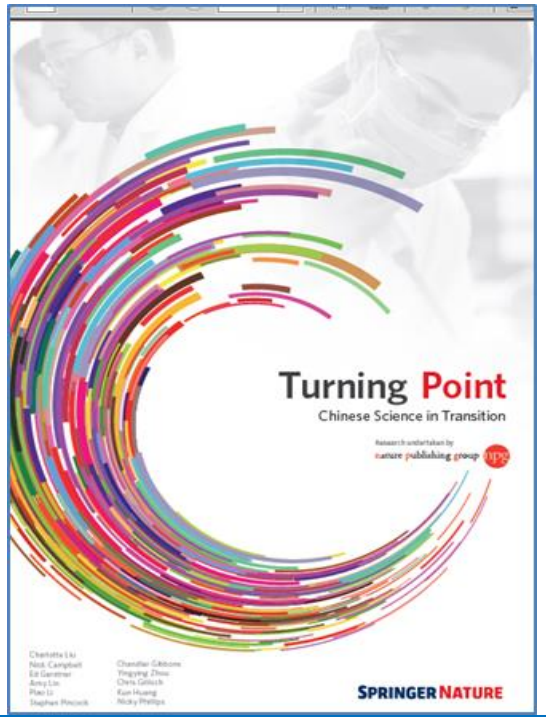
China taking steps

SCIENCEINSIDER

Breaking news and analysis from the world of science policy

SEAN WINTERS/FLICKR (CC BY-SA 2.0)

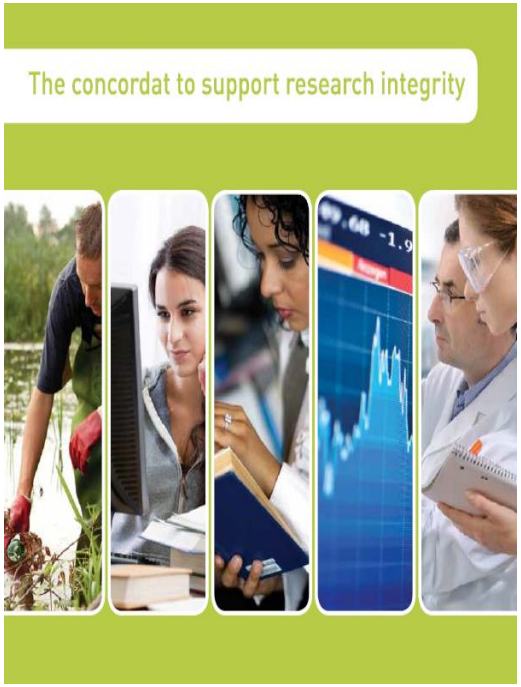
China pursues fraudsters in science publishing



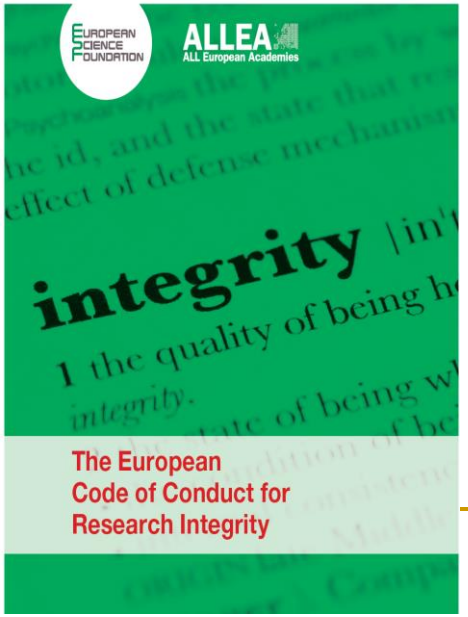
"I think the most important thing is the lack of education. Many times students don't even realize that they did something unethical or illegitimate ... For instance, I had such a student in my lab. He used the same graphs and text from a submitted article in another article. He didn't know that this is not allowed" PI, age 45-54, Beijing

Recommendation: ethics training needs to be improved and the importance of scientific ethics needs to be emphasized.

The UK: *Concordat to Support Research Integrity*



- Published July 2012
- References the European Code of Conduct for Research Integrity (2011) - a "*clear and useful framework*"



Research integrity video project

Nine core instructional areas central to RCR

- Protection of human subjects
- Welfare of laboratory animals
- Conflicts of interest
- Data management practices
- Mentor and trainee responsibilities
- Collaborative research
- Authorship and publication
- Peer review
- Research misconduct

Scientific ethics discussions in research groups

A good example of how one group leader approached this – *Dynamic Ecology* blog, 1 April 2014

- *" … there was such a palpable hunger for talking about the subject that it made me very happy we had taken the time and I plan to repeat this"*
- *"So even if you think your lab has no problems – no especially if you think your lab has no problems – just do it. Go ahead and schedule a discussion of scientific ethics in your lab. You'll be glad you did. I certainly was!"*

http://dynamicecology.wordpress.com/2014/04/01/scientific-ethics-discussions-in-labs/

Reducing the problems at publication stage – what can journals & publishers do?

- Guidance – clear and concise information/instructions
- Policies – general and discipline-specific
- Keeping up-to-date – on new issues, on evolving areas
- Filtering information, top-down and bottom-up, translating into policies and actions
- Don’t assume even the most basic knowledge about research integrity and ethics issues
- Reporting guidelines – effective implementation

What can be done with peer reviews?

COPE COMMITTEE ON PUBLICATION ETHICS

Sign in

What are you looking for

Home About COPE Resources Cases Become a member Members Events News & Opinion Contact Us

Home

FORUM DISCUSSION TOPIC: comments please

Who "owns" peer reviews?

Two trends have recently come together within scholarly publication; open review, and the desire to give credit to reviewers (see also [1]). At the convergence are organizations like Publons and Academic Karma who wish to openly acknowledge the work of peer-reviewers by recording, not only the amount, but also, in some circumstances, the content of individuals' peer-review activity.

Academics may view services like this as a way to regain control over their reviews and so may be keen to sign-up and provide the

other hand, often conduct confidential review processes and wish to restrict the sharing of comments exchanged during peer-revie

Emergence of these services therefore prompts a number of concerns and questions as to how best ensure author, editor, review

are protected.

Questions

- Does it violate confidential/blind peer-review to reveal reviewer comments even after publication?
- What can journals do to make sure reviewer comments remain confidential?
- How can reviewers ensure they are able to share and get credit for their work?

the scholarly kitchen

SEARCH

Home

WHAT'S HOT AND COOKING IN SCHOLARLY PUBLISHING

EXPERIMENTATION, METRICS AND ANALYTICS, PEER REVIEW, TOOLS

The Problem(s) With Credit for Peer Review

POSTED BY DAVID CROTTY · JUN 17, 2015 · 37 COMMENTS

FILED UNDER CREDIT, PEER REVIEW, TECHNOLOGY FOR TECHNOLOGY'S SAKE

Offering career credit to researchers for performing peer review seems like a no-brainer, right? Peer review is essential for our system of research, and study after study confirms that researchers consider it tremendously important. Funding agencies and journal publishers alike rely on researchers to provide rigorous review to aid in making decisions about who to fund and which papers to publish. On the surface it would seem to make sense to formalize this activity as a part of the career responsibilities of an academic researcher.

Image via 401(K) 2012

Thank you

Dr Irene Hames

irene.hames@gmail.com

@irenehames