

**IOP** Publishing

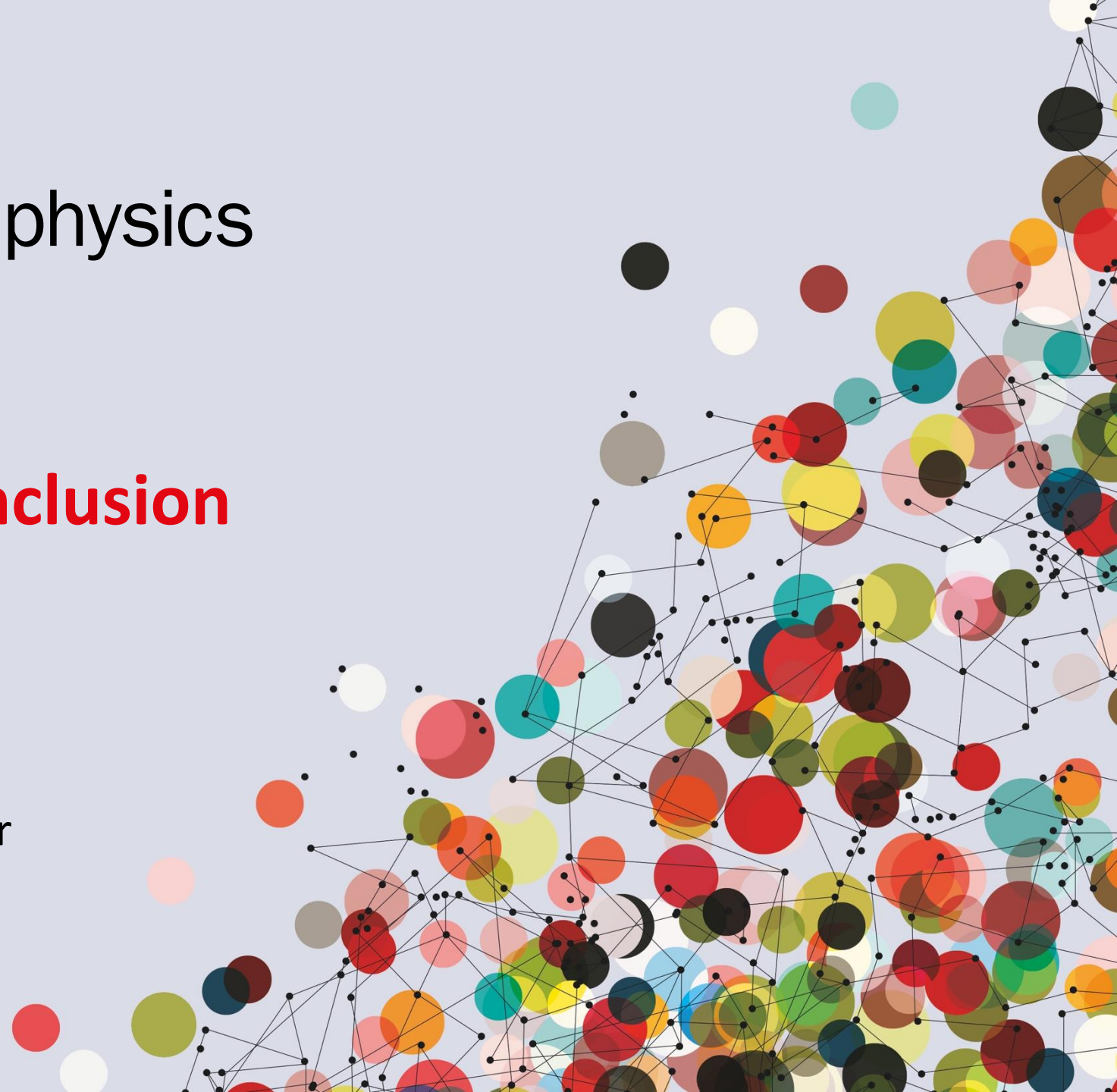
Expanding the world of physics

## Equality, Diversity and Inclusion in Research Publishing

Kim Eggleton

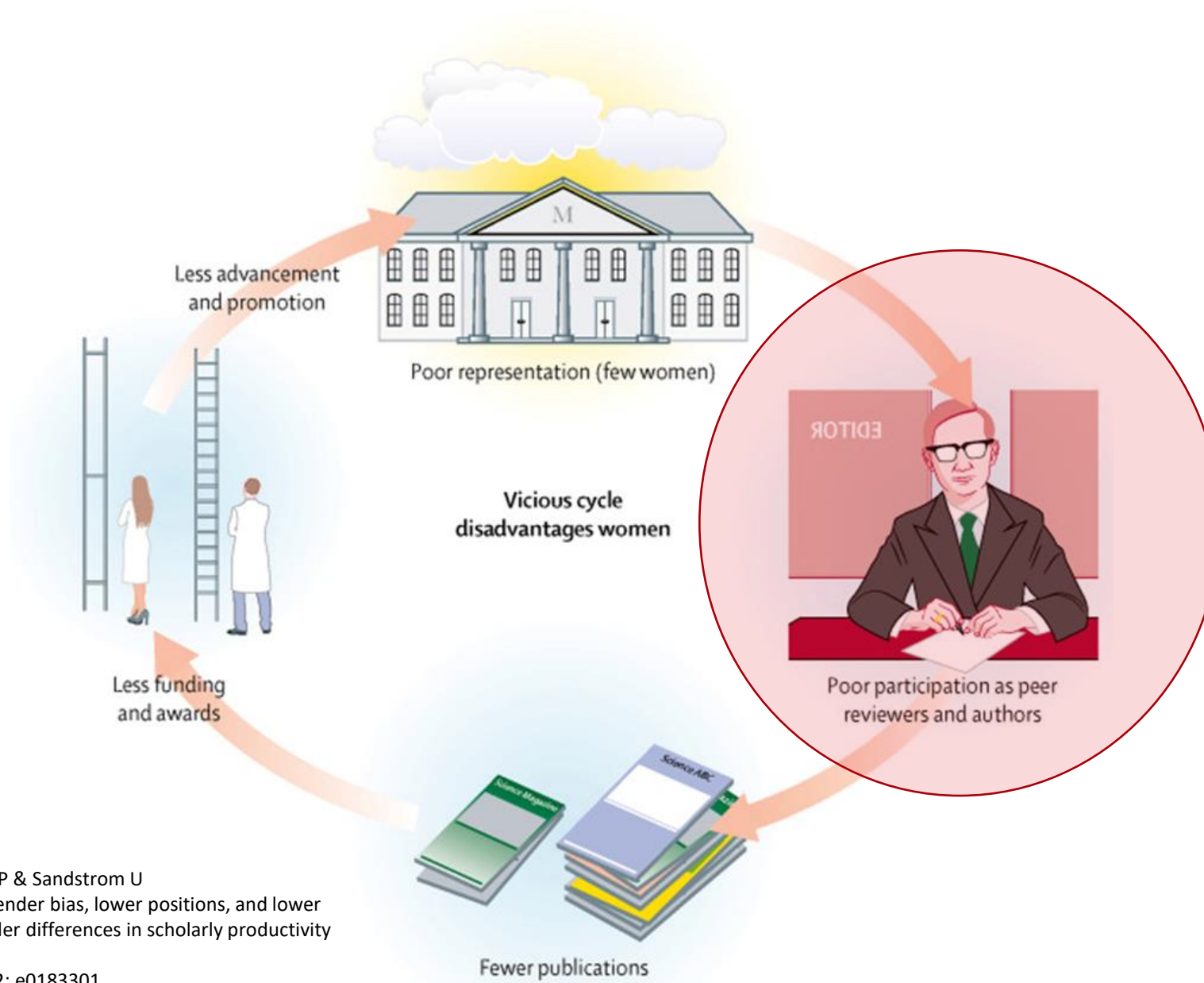
Research Integrity & Inclusion Manager

[ioppublishing.org](http://ioppublishing.org)





Publishers have absolved themselves of responsibility for a long time, considering the EDI issues in academia to be “academia’s problem”



- In reality, our publications (rightly or wrongly) are inextricably linked to career progression
- So any barriers we have in place are impacting people's careers - repeatedly



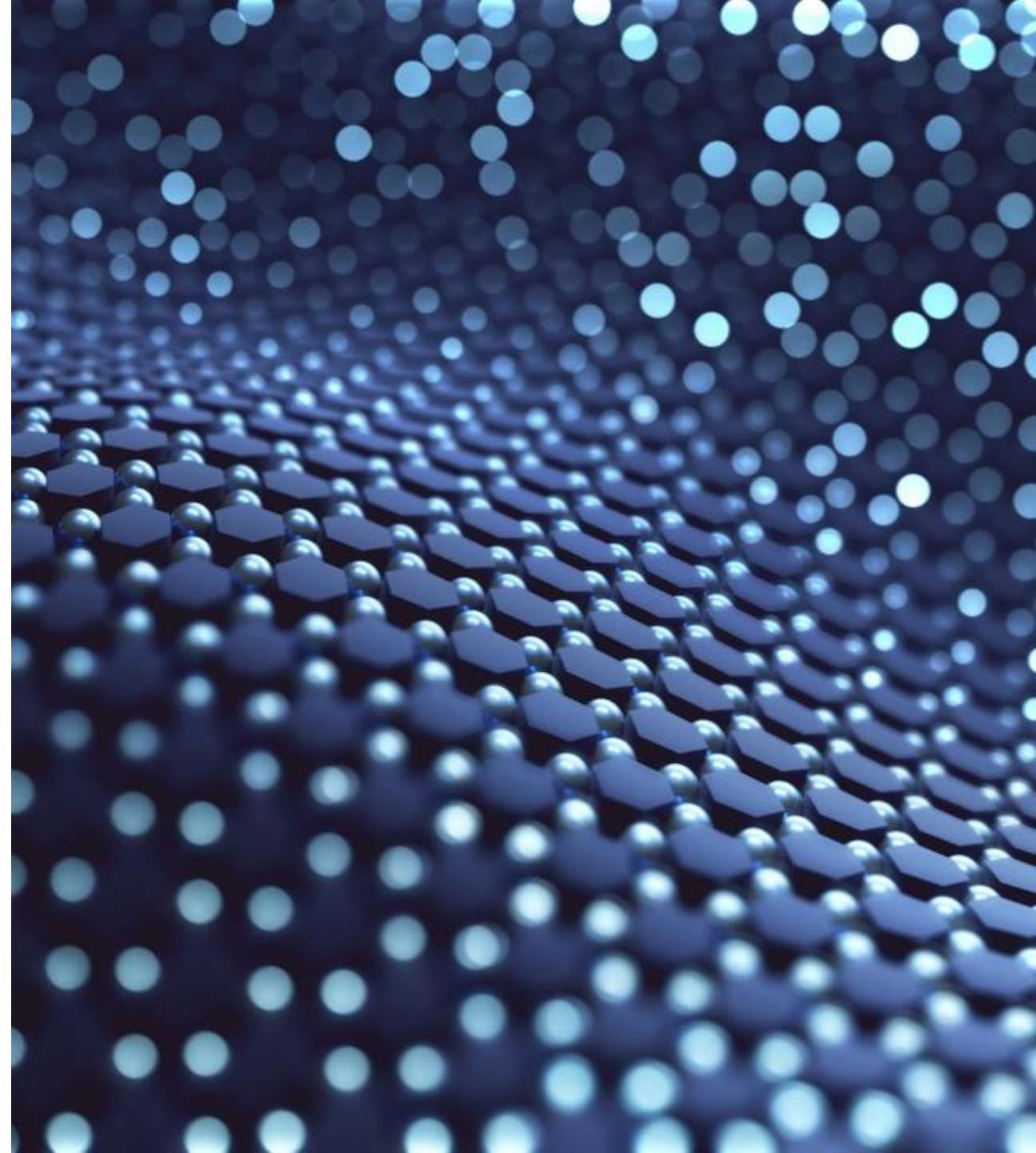
## Opening our eyes to the challenge

- Collecting data
- Bias in peer review
- Sex and gender reporting
- Helicopter research
- Name changes
- OA as a barrier



## Data

- How do we know there's a problem?
- Complexities of diversity data include:
  - Legal issues – GDPR, protected characteristics, ownership, storage, right to be forgotten
  - Moral issues – optional or mandatory? Allow self-descriptors or predefined list?
- Must not allow the data to be used in editorial decision making!





req

I identify my gender as:

Non-binary

▼

For more information on why we collect this data,  
please visit [this page](#):

req

I identify my level of academic experience as:

Early career researcher

▼

For more information on why we collect this data,  
please visit [this page](#):

IOPP collects self-reported data for gender, career stage and geography, and are now using this to understand bias in peer review



Diversity and inclusion metrics		
Proportion of accepted articles in 2020 from researchers* in:	China	21.5%
	India	0.0%
	UK	4.6%
	USA	13.8%
Proportion of accepted articles in 2020 from researchers* who identify as:	Women	24.0%
	Men	74.4%
	Non-binary	0.0%
	Not disclosed	1.6%
Proportion of reviewer invitations in 2020 to researchers in:	China	9.9%
	India	1.3%
	UK	6.1%
	USA	37.9%
Proportion of reviewer invitations in 2020 to researchers who identify as:	Women	25.5%
	Men	73.8%
	Non-binary	0.0%
	Not disclosed	0.7%

\*corresponding author.

## Some bias is conscious...

*"This young lady is lucky to have been mentored by the leading men in the field"*

<https://researchintegrityjournal.biomedcentral.com/articles/10.1186/s41073-020-00096-x>

*"There are definitely too many references from Asiatic authors."*

IOPP reviewer



*"The author's last name sounds Spanish. I didn't read the manuscript because I'm sure it's full of bad English"*

<https://peerj.com/articles/8247/>

*"Dear ladys (sic), your place is in kitchen, not in physics. Give this text to Hawking or someone like him, because you are to stupid to read it."*

IOPP author, to an all female editorial team

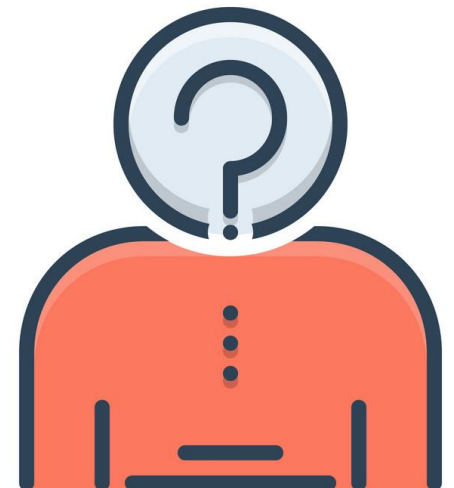
## Most is unconscious

- “We found evidence of a homophilic relationship between the demographics of the gatekeepers and authors and the outcome of peer review; that is, there were higher rates of acceptance in the case of gender and country homophily” (<http://dx.doi.org/10.1101/400515>)
- “Acceptance rates for male corresponding authors were higher than for women, and this inequity was more pronounced if all reviewers were male” (<http://dx.doi.org/10.1101/400515>)
- “US reviewers recommended acceptance of papers submitted by US authors more often than did non-US reviewers” (<https://doi:10.1001/jama.280.3.246>)
- “Many countries in the Western cultural sphere—especially the United States, Canada, and the United Kingdom—have greater shares of editorial board appointees relative to their share of scientific output (“editorial surplus”), leaving countries such as China, Brazil, and India with an “editorial deficit.”” (<https://bit.ly/30L1weA>)
- “changing the source of a research abstract from a low- to a high-income country significantly improves how it is viewed, all else being equal” (<https://doi.org/10.1377/hlthaff.2017.0773>)
- “in almost all academic fields, men cite their own research papers at a higher rate than women do.” (<https://doi.org/10.1177%2F2378023117738903>)

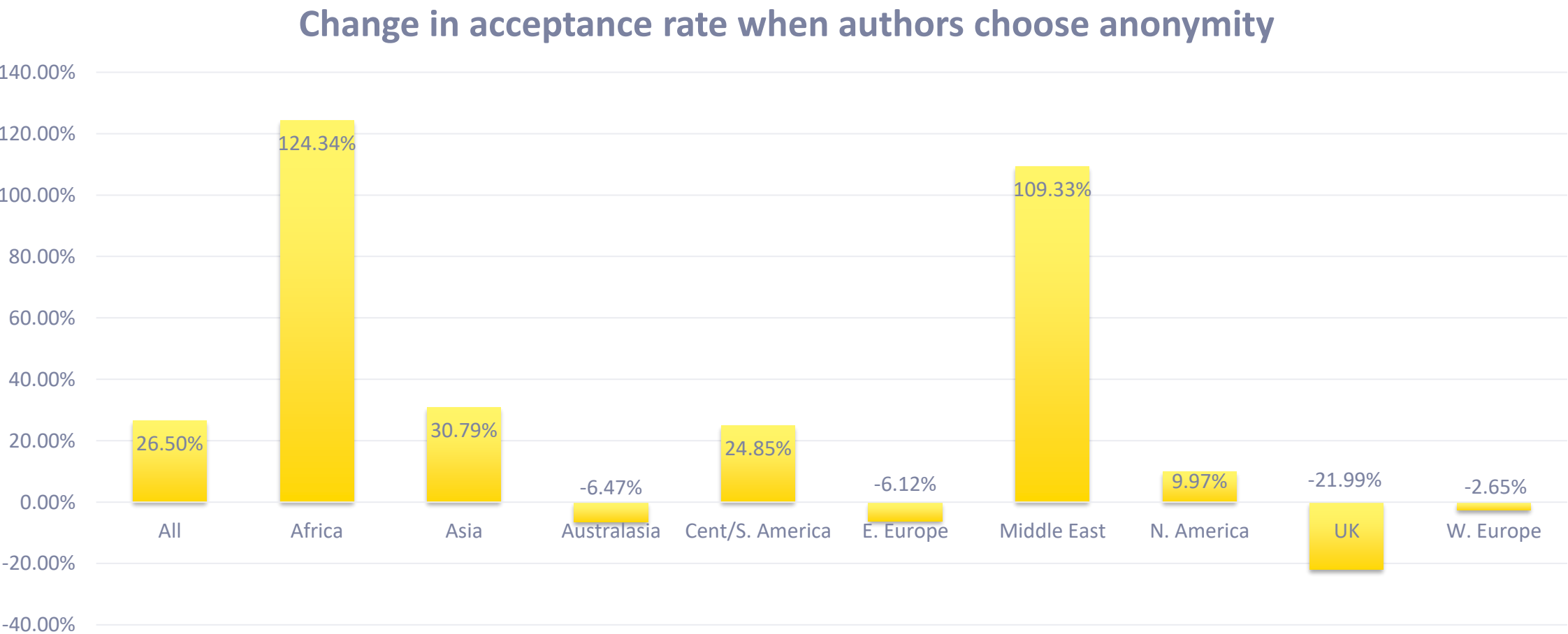


## Could anonymity be part of the answer?

- Multiple studies suggest double-anonymous peer review is deemed the most fair
  - <https://doi.org/10.1186/s41073-018-0049-z>
  - <https://doi.org/10.1002/leap.1283>
- And some are beginning to show improvements for traditionally disadvantaged groups
  - <https://doi.org/10.1016/j.tree.2007.07.008> (gender)
  - <https://doi.org/10.48550/arXiv.1702.00502> (reputation)
- Our own data suggests authors who use double-anonymous rate their experience more highly than authors under single-anonymous, including those who have their work rejected



What happens when you anonymise your work?



## **It's not just about who we publish, but what we publish**

- For a long time there has been a bias towards (white) male participants in research. In 1993 this was recognised to the extent that the National Institutes of Health (NIH) Revitalization Act was signed into law in the US, calling for the NIH to require that the inclusion of women and minorities are prioritised and reported on in all federally funded clinical research. Despite this, there persists an under-representation of genders and ethnicities in clinical research. The public health repercussions are this are incredibly serious, for example:



## When it goes wrong...

- Among the ten prescription pharmaceuticals withdrawn from the US market between 1997 and 2001, eight caused greater harm to women than men (1)
- As recent as 2013, the US Food and Drug Administration (FDA) issued a safety communication, recommending half a dose of zolpidem for women, due to greater susceptibility to the risks of the drug (2)
- Female drivers are more likely to be seriously injured or killed in a car crash than male drivers, because crash test dummies have been modelled on the male body (weight, size and shape) (3)
- Race and gender affect the accuracy of Google's speech recognition to the extent that for a white male, accuracy is 92%, but for a mixed race female this falls to 69% (4)

Sex and/or gender-based analysis, in all of these cases, would have provided sufficient information to guide applicability of drugs and products in men and women prior to approval. As a result of this improved understanding, we are now trialling the SAGER guidelines on one of our journals, Physical Measurement.

1. <https://www.gao.gov/products/gao-01-286r>
2. <https://www.fda.gov/media/84992/download>
3. <https://www.theguardian.com/lifeandstyle/2019/feb/23/truth-world-built-for-men-car-crashes>
4. <https://hbr.org/2019/05/voice-recognition-still-has-significant-race-and-gender-biases>

## The SAGER Guidelines: Sex and Gender Matter

### GENERAL PRINCIPLES

• Authors should use the terms sex and gender carefully in order to avoid confusing both terms.

• Where the subjects of research comprise organisms capable of differentiation by sex, the research should be designed and conducted in a way that can reveal sex-related differences in the results, even if these were not initially expected.

• Where subjects can also be differentiated by gender (shaped by social and cultural circumstances), the research should be conducted similarly at this additional level of distinction.

### BACKGROUND

Sex and gender differences are often overlooked in research design, study implementation and scientific reporting, as well as in general science communication. This oversight limits the generalizability of research findings and their applicability to clinical practice, in particular for women but also for men.

“ use by authors and reviewers, adoption by editors, respect by funders ”

The EASE Gender Policy Committee (GPC) works to advance gender- and sex-sensitive reporting and communication in science. It was established in 2012 as a group of editors and researchers from various disciplines who aim to contribute to better science and improved transparency.

Its focus is wide and encompasses the life, natural or social sciences, but also enhanced evidence-based practices, interventions and opportunities, for both women and men.

The GPC drafted a set of guidelines to encourage a more systematic approach to the reporting of sex and gender in research across disciplines. The resulting SAGER guidelines were published in May 2016 in ‘BMC Research and Integrity and Peer Review’, an open access journal. This present document is derived from that article, which explains the rationale of the guidelines and their recommended use. It is available in full at: <https://researchintegrityjournal.biomedcentral.com/articles/10.1186/s41073-016-0007-6>

<sup>†</sup> Heidari et al. Sex and Gender Equity in Research: rationale for the SAGER guidelines and recommended use. Research Integrity and Peer Review (2016) 1:2 DOI 10.1186/s41073-016-0007-6

### SAGER GUIDELINES: RECOMMENDATIONS PER SECTION OF THE ARTICLE

#### Title and abstract

If only one sex is included in the study, or if the results of the study are to be applied to only one sex or gender, the title and the abstract should specify the sex of animals or any cells, tissues and other material derived from these and the sex and gender of human participants.

#### Introduction

Authors should report, where relevant, whether sex and/ or gender differences may be expected.

#### Methods

Authors should report how sex and gender were taken into account in the design of the study, whether they ensured adequate representation of males and females, and justify the reasons for any exclusion of males or females.

#### Results

Where appropriate, data should be routinely presented disaggregated by sex and gender. Sex- and gender-based analyses should be reported regardless of positive or negative outcome. In clinical trials, data on withdrawals and dropouts should also be reported disaggregated by sex.

#### Discussion

The potential implications of sex and gender on the study results and analyses should be discussed. If a sex and gender analysis was not conducted, the rationale should be given. Authors should further discuss the implications of the lack of such analysis on the interpretation of the results.

**SAGER** Guidelines

## Neo-colonial, helicopter or parachute research

“The practice of scientists from wealthy nations visiting lower-income countries, collecting samples, publishing the results with little or no involvement from local scientists, and providing no benefit for the local community”

A 2003 study by the [Hungarian academy of sciences](#) found that 70% of articles in a random sample of publications about [least-developed countries](#) did not include a local research co-author.

Sadly this is still quite common, and multiple Publishers and journals are trying to mitigate these issues, including the Lancet Global Health, and PLOS. Another Publisher, Cell Press, is trying to address this by encouraging authors to submit an inclusion & diversity form. This form is a way for authors to declare a variety of aspects related to their research, including research methodology, sample selection, and (co-)author profiles. Authors can choose to include a statement to reflect this information in their article.

In January this year they announced 26% of authors had completed a form in the last 12 months, with 9% choosing to include a statement with their published paper.

48% of those who completed a form ticked to confirm the author list of this paper includes **contributors from the location where the research was conducted** who participated in the data collection, design, analysis, and/or interpretation of the work.

### Inclusion and diversity statement

We worked to ensure sex balance in the selection of non-human subjects. One or more of the authors of this paper self-identifies as living with a disability. One or more of the authors of this paper received support from a program designed to increase minority representation in science. The author list of this paper includes contributors from the location where the research was conducted who participated in the data collection, design, analysis, and/or interpretation of the work.



“

*Trans researchers are caught between losing their publication record and being outed without permission*

”

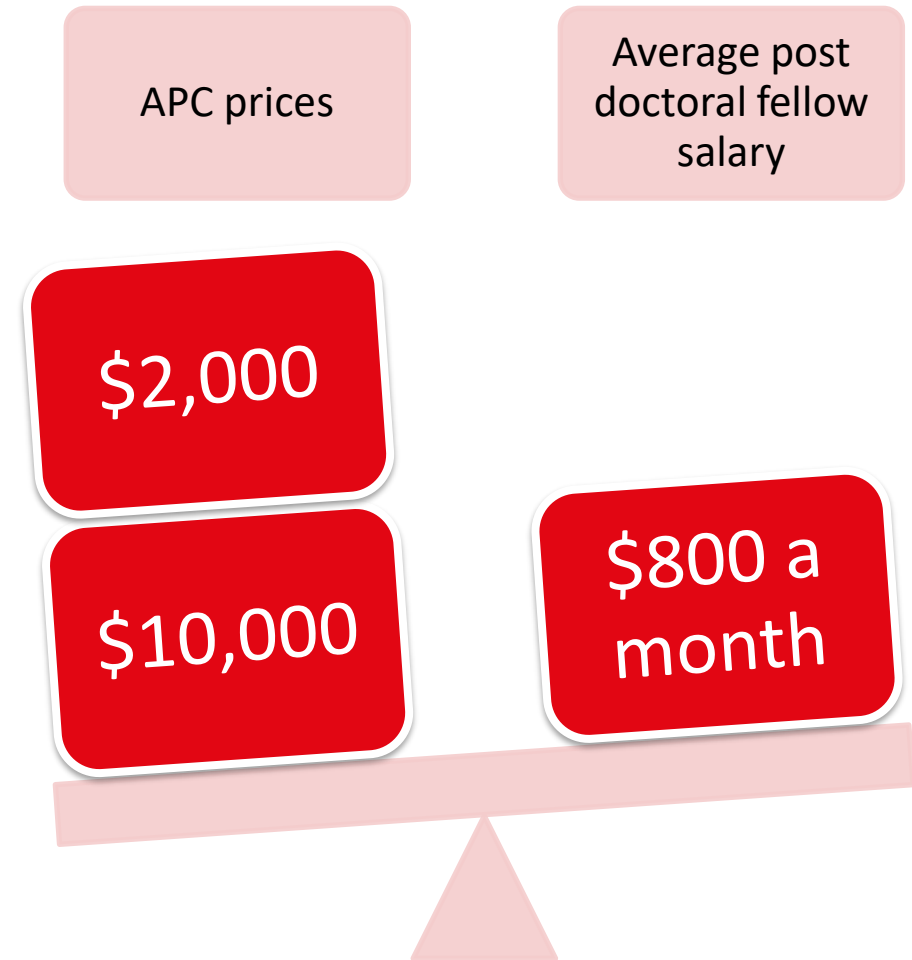


Publishers now allow researchers to change their name on previously published work, thanks to social media activism by authors

## Gold Open Access as a barrier

- Gold open access articles display significantly lower geographical diversity among their authors ([https://doi.org/10.1162/qss\\_a\\_00157](https://doi.org/10.1162/qss_a_00157))
- Waivers and discounts are helpful, but often only apply to countries classed by the World Bank as “low-income”
- Authors often don’t know about these, so don’t submit, or feel ashamed to ask

## Case study: Brazil



## What are Publishers doing?

- Feeling trapped by initiatives like Plan S
- Authors in some countries are finding themselves priced out of publication in major journals, and have to publish in outlets where their work will be hidden behind a paywall
- We don't want to create a two-tier system whereby only those who can afford to will have their research published and read
- IOPP now offer a full 100% waiver for authors from low-income countries, and 50% discount for low-middle income countries.
- We've also recognised we need to do a lot more promotion of these schemes
- Automatic application of World Bank discounts – no need to ask anymore



**Thank you for your attention**

<https://iopublishing.org/open-physics/inclusivity/>

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