



The interactions between social media and science in societal debates

Who are the Guardians of Truth and Integrity?
BHAVI 2022-10 Symposium

Vincent Traag, *Senior Researcher*
Centre for Science and Technology Studies (CWTS), Leiden University



Universiteit
Leiden

Science and society

- How do altmetrics correlate with citations? Extensive comparison of altmetric indicators with citations from a multidisciplinary perspective
- Overview of attention for article published in Journal of the Association for Information Science and Technology, July 2014



About this Attention Score

In the top 5% of all research outputs scored by Altmetric

MORE...

Mentioned by

- 12 blogs
- 2 policy sources
- 98 tweeters
- 2 Facebook pages
- 1 Google+ user

Citations

244 Dimensions

Readers on

515 Mendeley

SUMMARY

Blogs

Policy documents

Twitter

Facebook

Google+

Dimensions citations

So far, Altmetric has seen 108 tweets from 98 users, with an upper bound of 372,588 followers.

Showing items 1-100



David de Sancho
@daviddesancho

Several studies have shown poor correlations between altmetrics and citations
<https://t.co/6PZRtuhaQH> <https://t.co/6uLh2j1fLP>

15 Apr 2019



Gregor Kalinkat
@gkalinkat

here is a highly cited analysis from 2014 on the topic ... #Altmetric <https://t.co/5wyj4g4MSj> <https://t.co/TUc7PzHP4K>

15 Mar 2019



Crystal Steltenpohl
@CNSteltenpohl

@AnnaRopp I'm not sure if this is exactly what you're looking for, but: <https://t.co/yxcITVSRyo>
<https://t.co/e0N6ZYWFep> <https://t.co/0QO2A1sLBi> <https://t.co/m4mbylt2Nj> Looks like the evidence is mixed. Open access might have a lot to do with it.

18 Apr 2018



Dana Linnell Wanzer, PhD
@danawanzer

@PonceletEvan I haven't seen anything for eval, but there has been research on altmetric scores. Here's one: <https://t.co/NfhImbQ517>

22 Nov 2017



ScienceOpen
@Science_Open

@Dey_Gautam @altmetric Others have before! Here's a good place to start:
<https://t.co/m1qvAVYn94>

06 Apr 2016



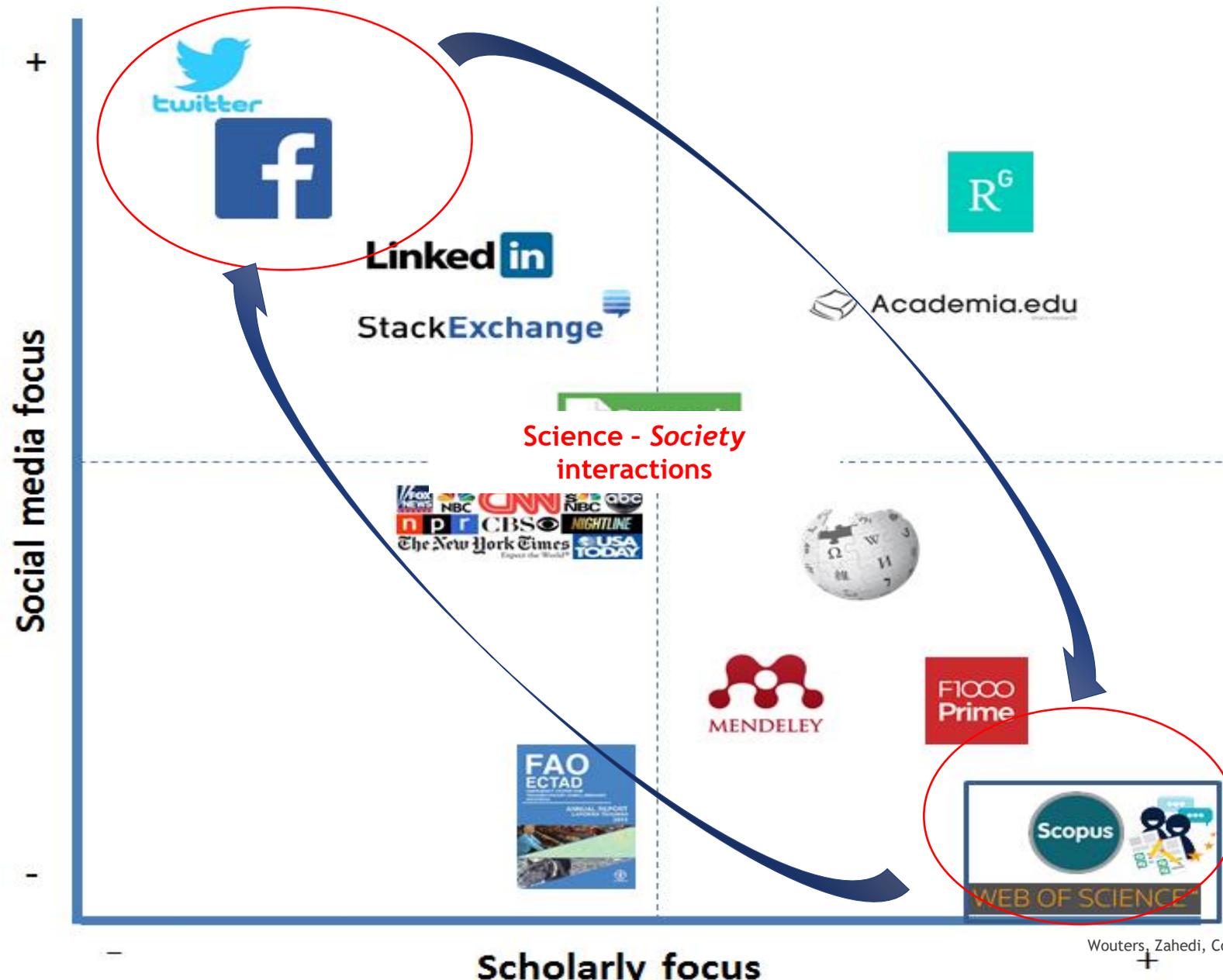
Bitcoin employee
@davidweiss

RT @iddux: altmetrics score majorly contributed by Tweets. <https://t.co/9N802LZ6iu> Best altmetric predictor: number of author's follower...

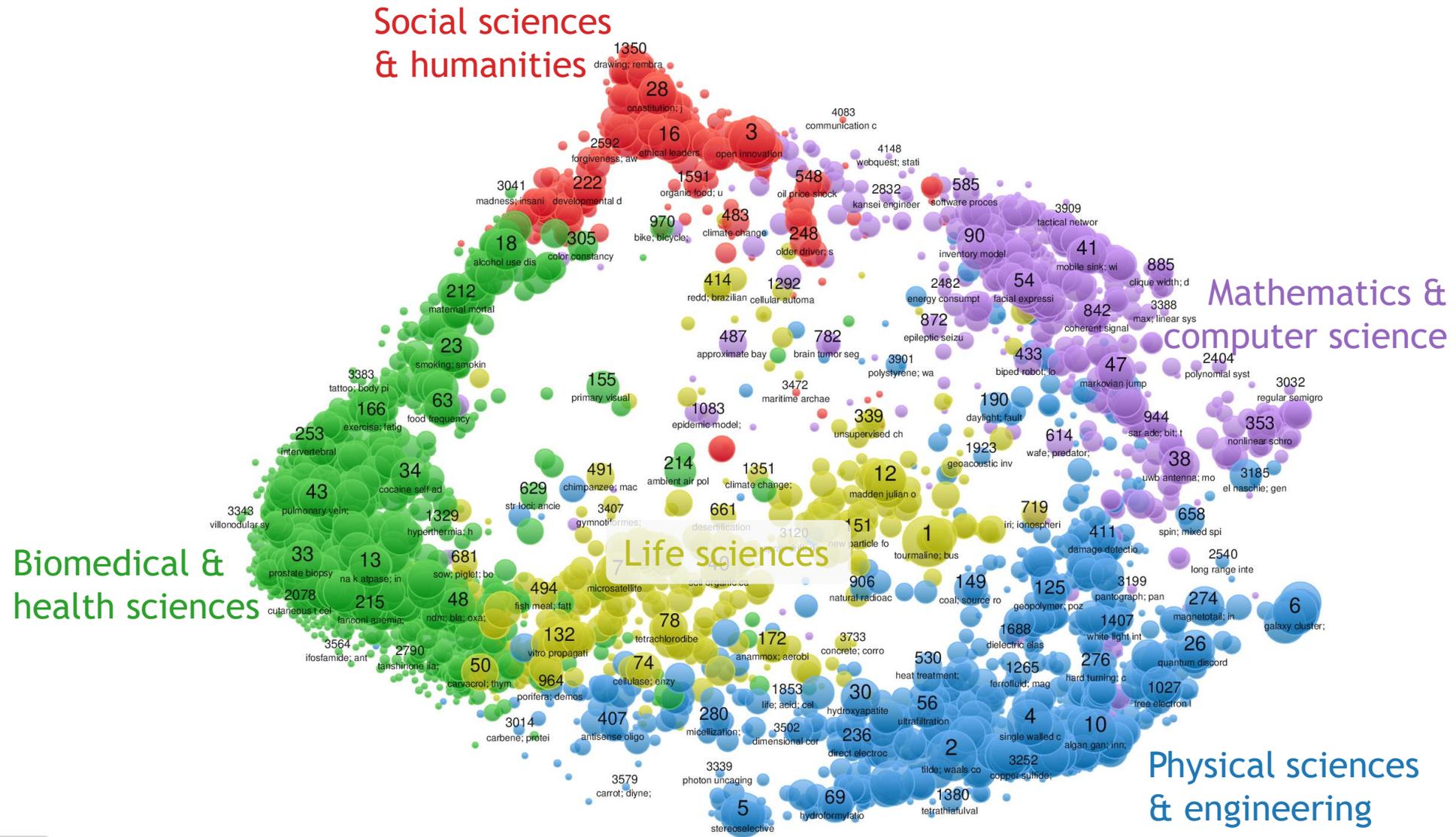
11 Jan 2016



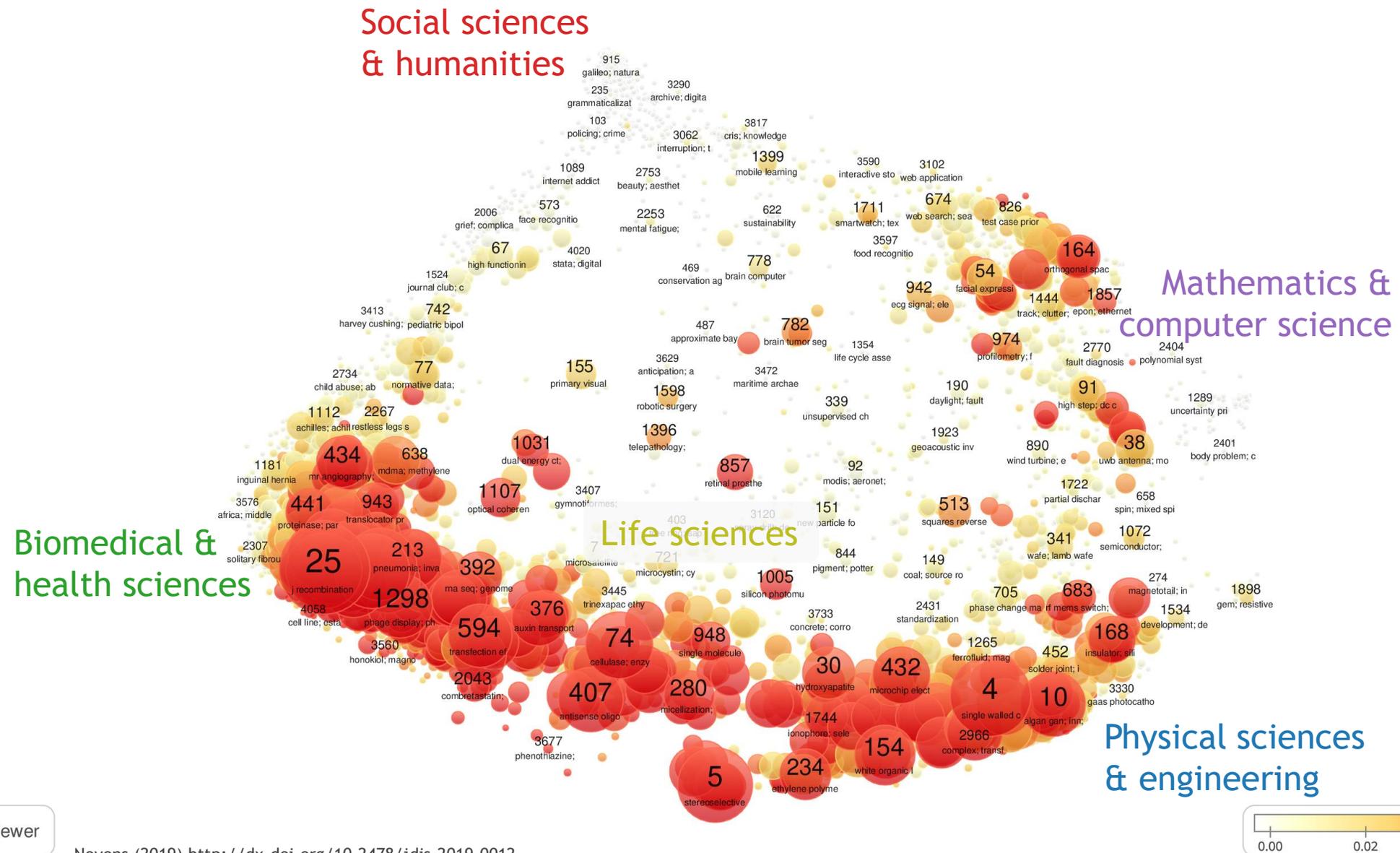
What are altmetrics? “Bridging worlds”



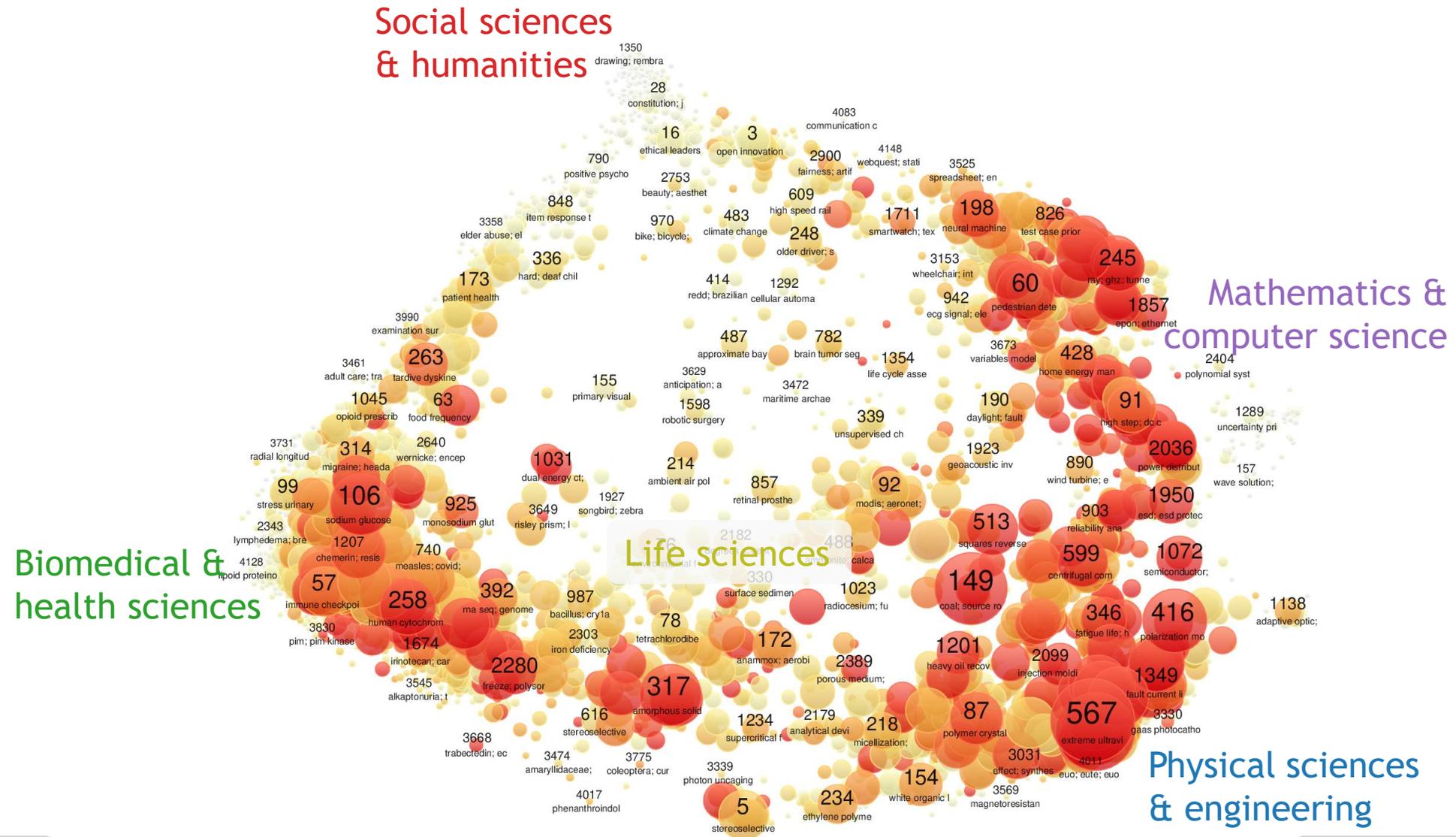
Science landscape (Web of Science)



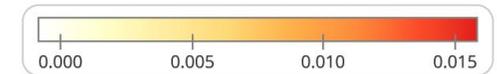
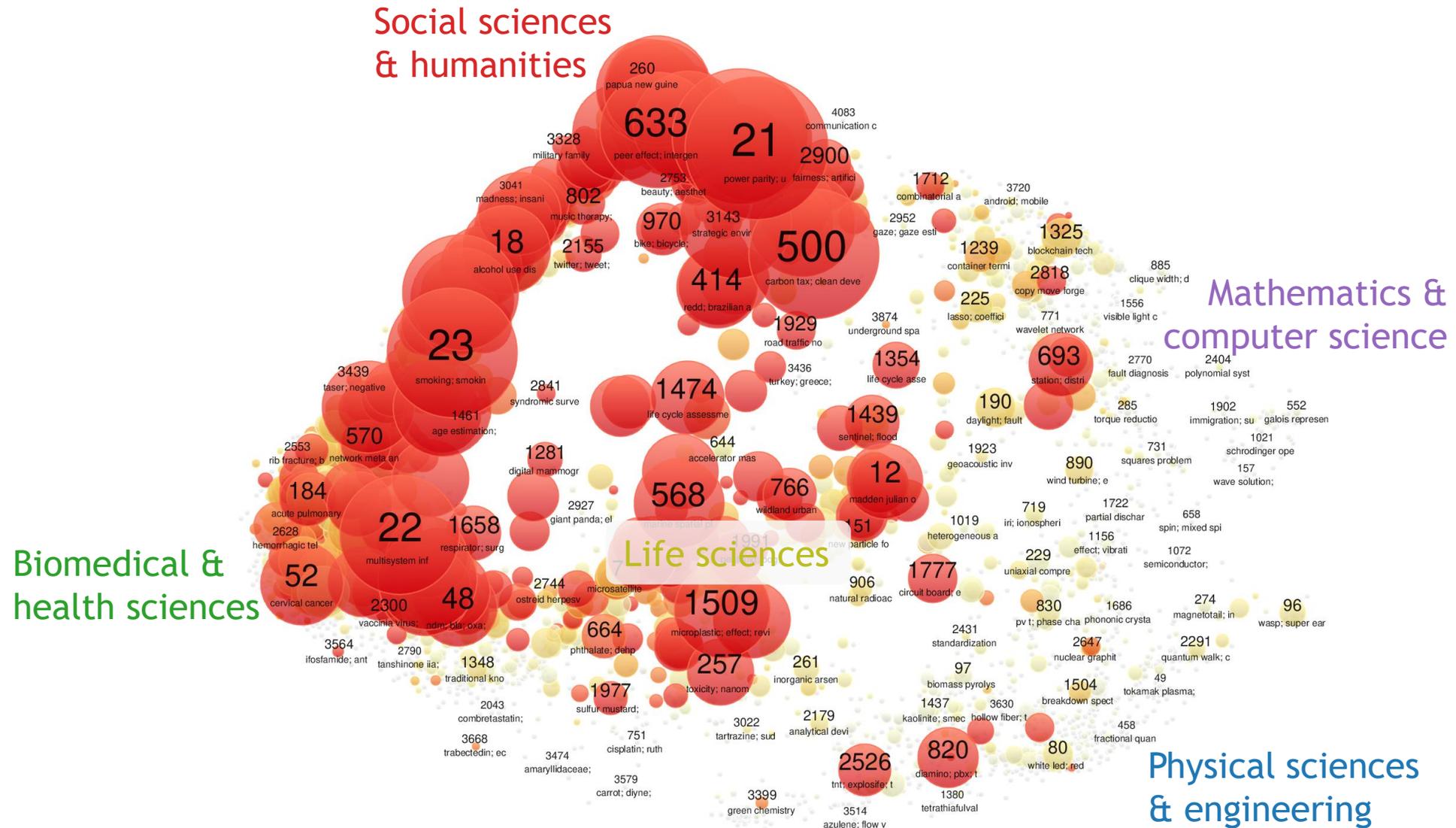
Science landscape (patent citations)



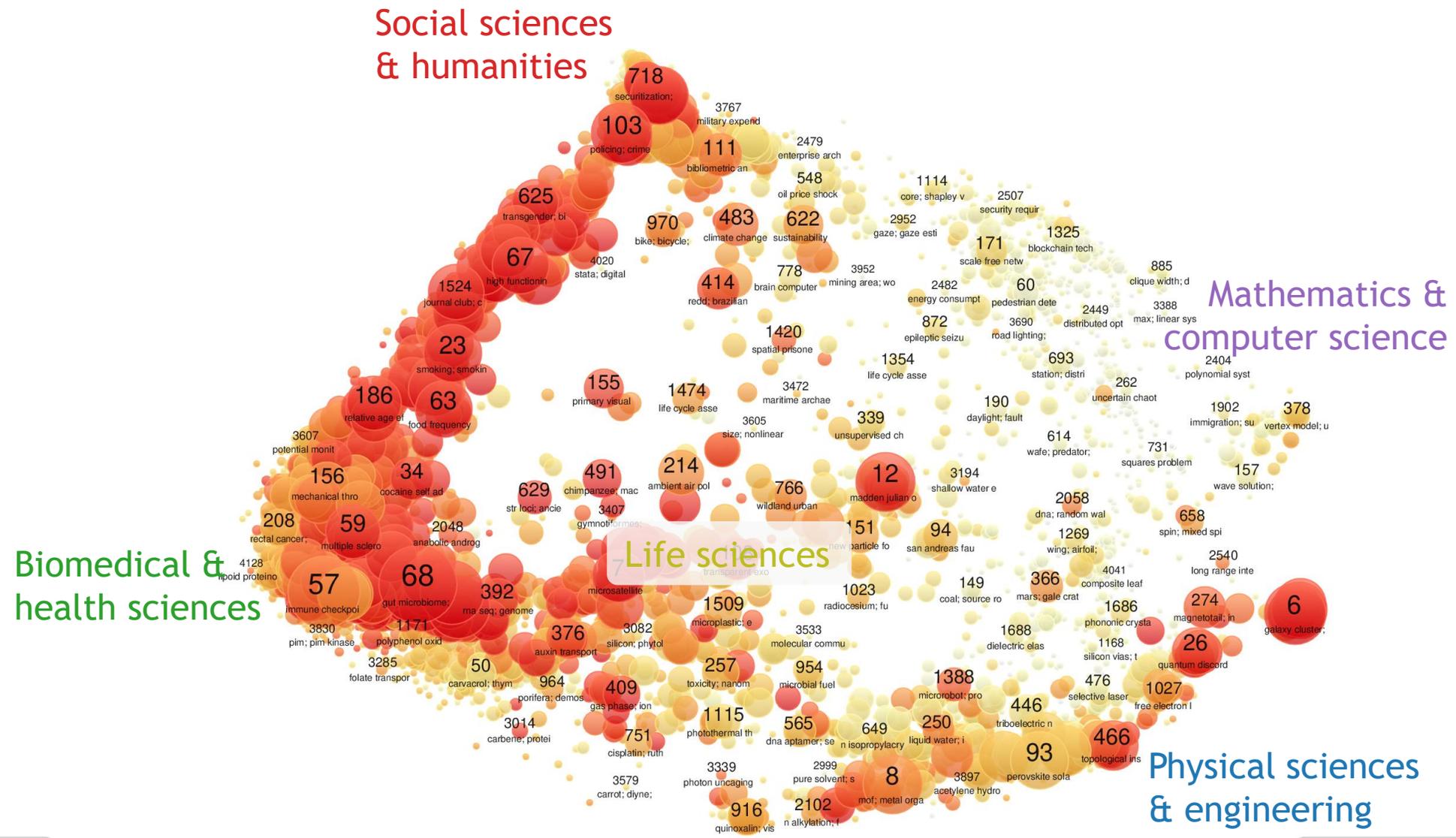
Science landscape (industry collaborations)



Science landscape (policy mentions)



Science landscape (twitter mentions)



Do they correlate?



Main observations:

- Weak positive correlations with citations (except MR)
- Strong correlations among social media platforms (TW, FB, NS, BL, RD)
- Overall, 2 dimensions of indicators:
 - CT & MR - **academic impact**
 - TW (& social media metrics) - **social media impact**

What else? The funny things...

The screenshot shows a web browser displaying an article on IOPscience. The article title is "Can apparent superluminal neutrino speeds be explained as a quantum weak measurement?". The abstract text "Probably not." is highlighted with a red box. A sidebar on the right contains social media sharing options and a "scite_" widget showing citation counts. The footer includes a physicsworld webinar sponsorship notice.

Journal of Physics A: Mathematical and Theoretical

FAST TRACK COMMUNICATION

Can apparent superluminal neutrino speeds be explained as a quantum weak measurement?

M V Berry¹, N Brunner¹, S Popescu¹ and P Shukla²

Published 11 November 2011 • © 2011 IOP Publishing Ltd

[Journal of Physics A: Mathematical and Theoretical, Volume 44, Number 49](#)

Citation M V Berry et al 2011 *J. Phys. A: Math. Theor.* **44** 492001

+ Article information

Abstract
Probably not.

Export citation and abstract

[BibTeX](#) [RIS](#)

3494

- Picked up by 3 news outlets
- Blogged by 19
- Tweeted by 6699
- On 60 Facebook pages
- Referenced in 1 Wikipedia pages
- Mentioned in 156 Google+ posts
- Reddited by 3
- Mentioned in 1 Q&A threads

Share this article

Abstract

scite_

✓	1
↻	19
?	1

A physicsworld webinar sponsored by Witec | Apr 22, 2021, 3 PM BST (4 PM CEST)

brary

Search for your next job from



Science > Animal Behavior > Ethology > Vol 120 Issue 11 > Abstract

ethology international journal of behavioural biology



Close x

5191

- Picked up by 8 news outlets
 - Blogged by 14
 - Tweeted by 6779
 - Mentioned by 1 peer review sites
 - Mentioned by 4 weibo users
 - On 50 Facebook pages
 - Mentioned in 15 Google+ posts
- [Click for more details](#)

Research Paper

Variation in Melanism and Female Preference in Proximate but Ecologically Distinct Environments

Zachary W. Culumber^{1,2,*}, Christian E. Bautista-Hernández^{1,2}, Scott Monks², Lenin Arias

Issue

Ethology

Article first published online 10 October 2014

...change also gave birth to predominantly melanistic fry in the laboratory (M. Tobler, pers. obs.). Although association preferences documented in our study theoretically could be a consequence of either mating or shoaling preferences in the different female groups investigated (should we cite the crappy Gabor paper here?), shoaling preferences are unlikely drivers of the documented patterns both because of evidence from previous research and inconsistencies with *a priori* predictions. Our methods closely followed those of published mate choice experiments in this system (Tobler et al. 2009a,b; Plath et al. 2013), and association time is a standard metric of mate

SEARCH

In this issue

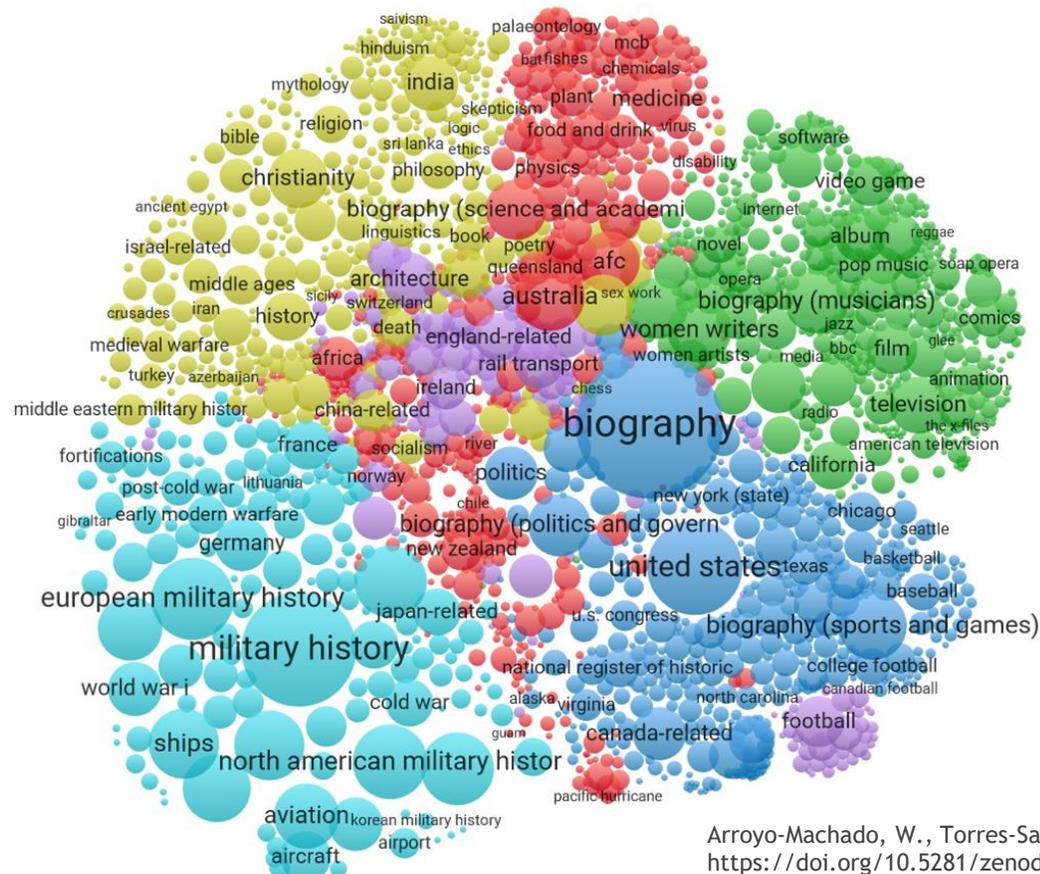
Advanced

ARTICLE

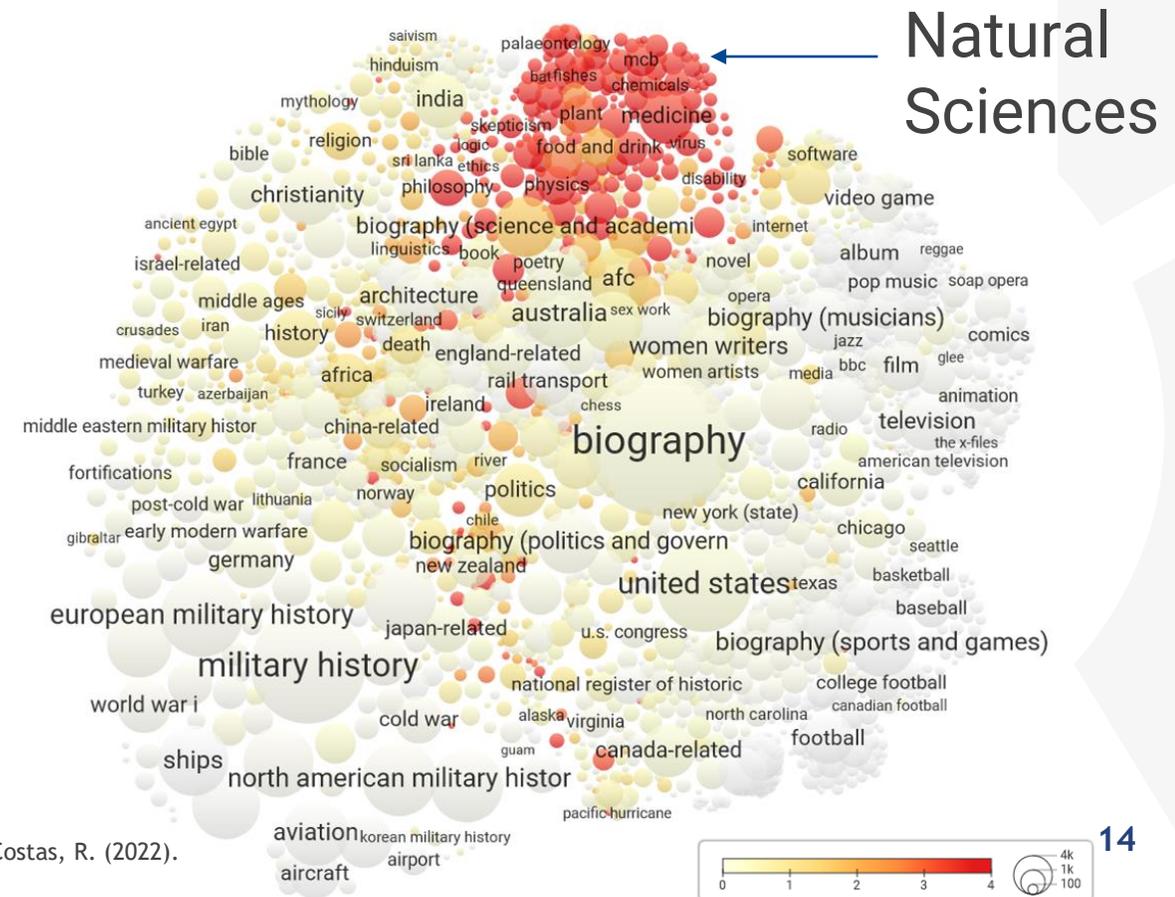
- Get PDF
- Save to
- E-mail
- Export

Use of science in Wikipedia

Thematic landscape



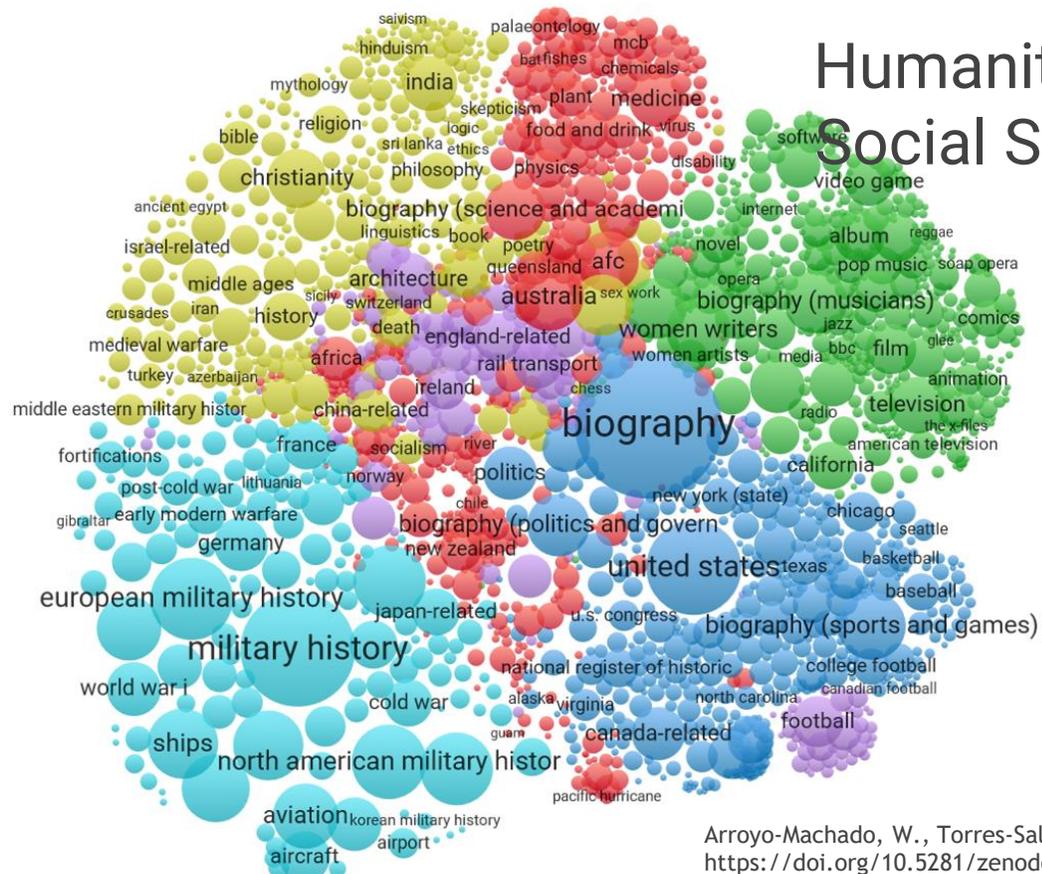
Average number of DOI in references



Arroyo-Machado, W., Torres-Salinas, D., & Costas, R. (2022).
<https://doi.org/10.5281/zenodo.696746>

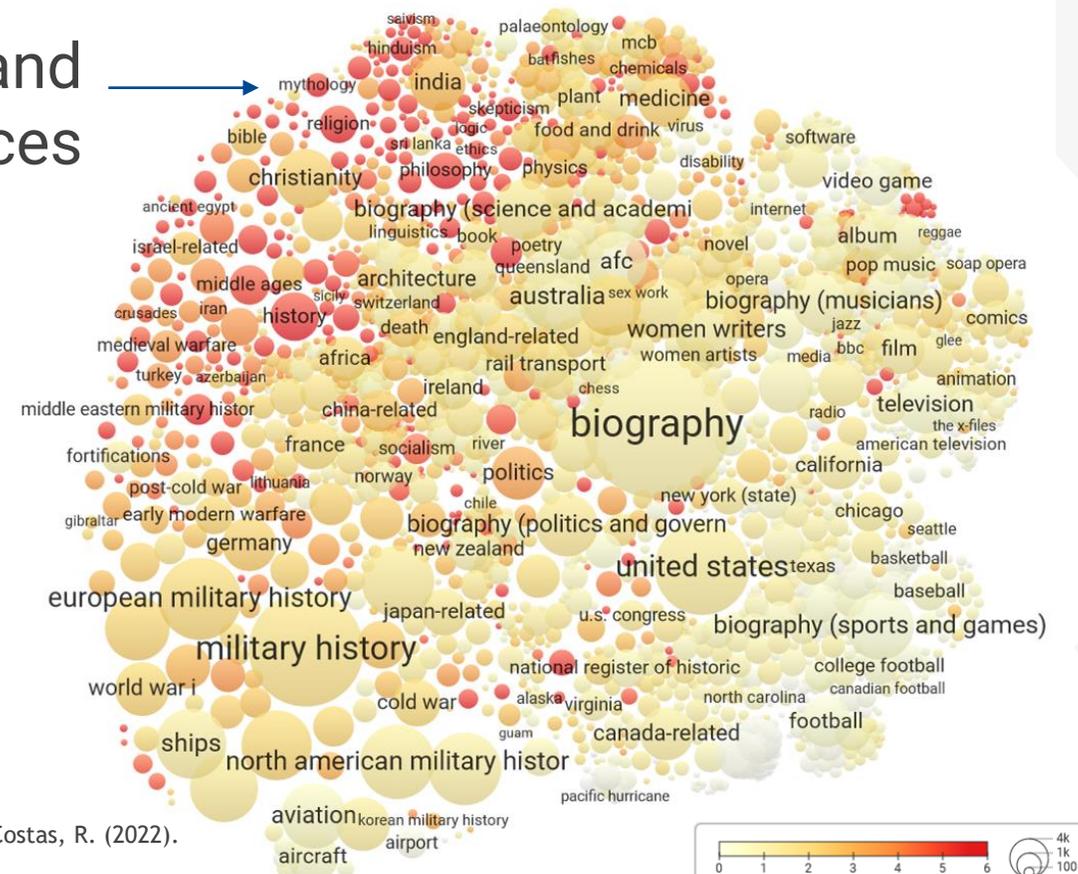
Use of science in Wikipedia

Thematic landscape



Humanities and
Social Sciences

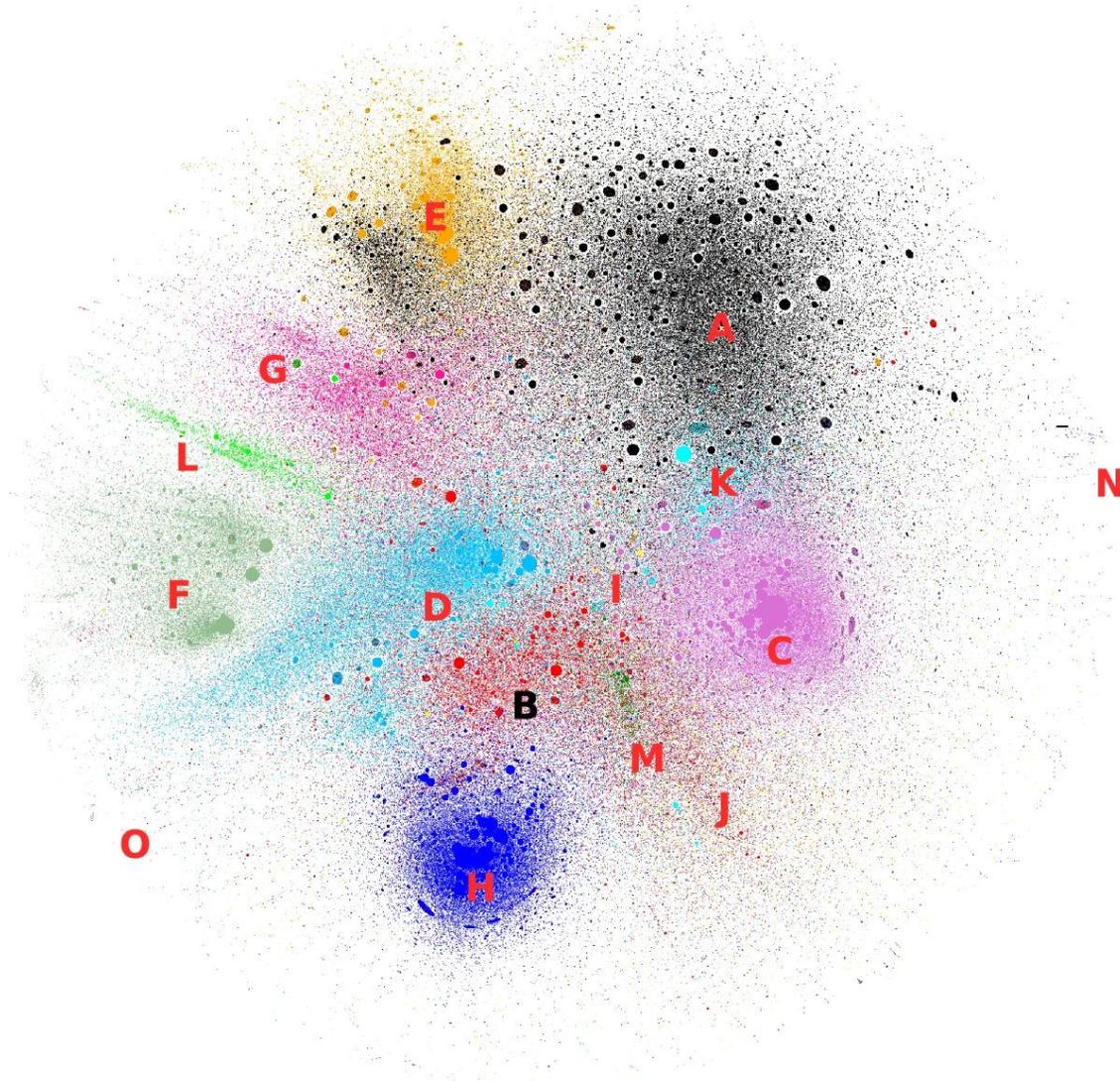
Average number of ISBN in references



Arroyo-Machado, W., Torres-Salinas, D., & Costas, R. (2022).
<https://doi.org/10.5281/zenodo.696746>



Science in Twitter debate on COVID19

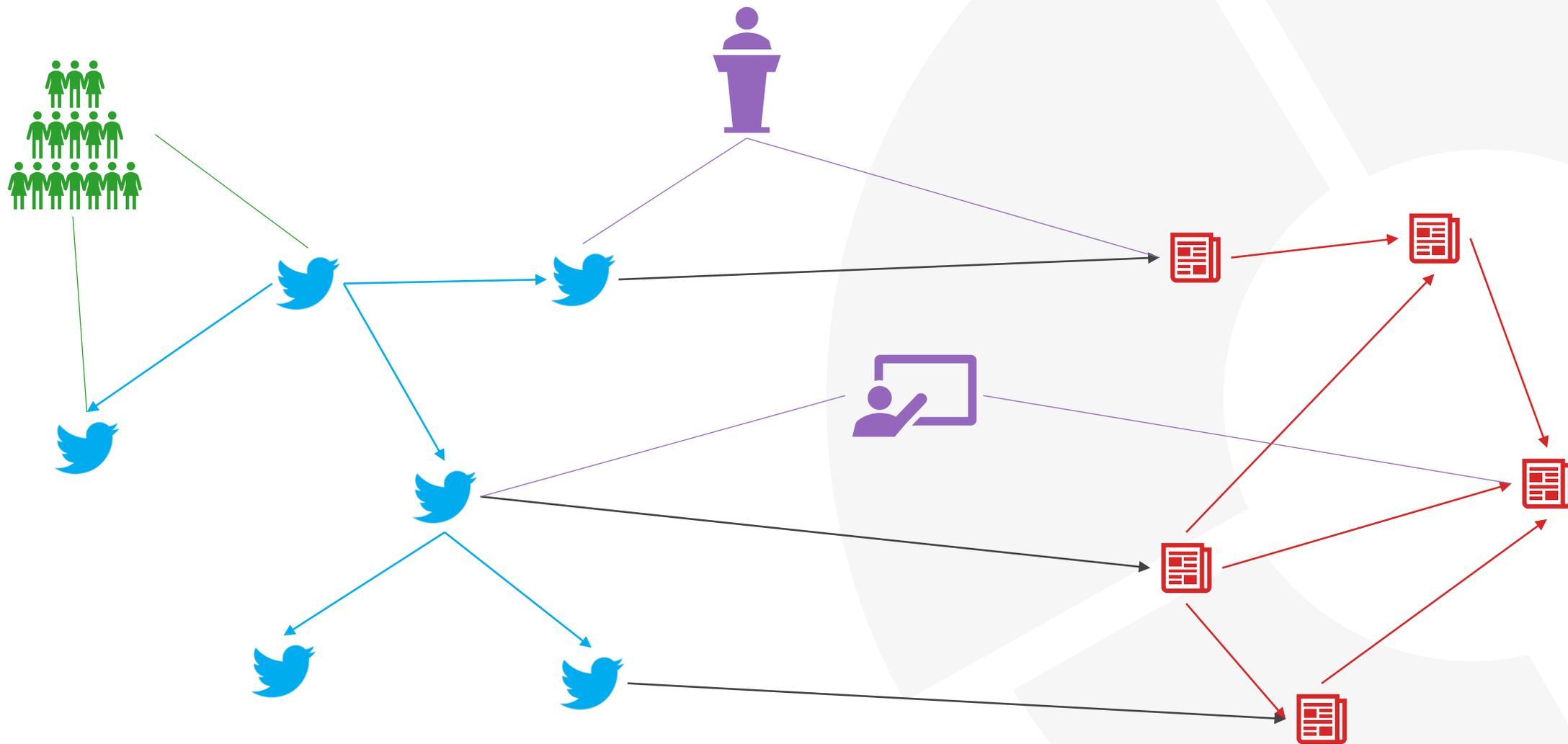


S	C	Name	First category	Size
Orange	Yellow	I	Sports	2.1%
	Brown	J	Science	2.0%
	Cyan	D	Science	9.4%
	Green	M	Science	0.8%
Grey	Orange	E	Arts & Entertainment	7.2%
	Purple	N	Adult content	0.6%
	Black	A	Arts & Entertainment	33.3%
	Light Grey	O	Business	0.6%
Purple	Red	B	Science	10.6%
	Pink	G	Science	6.4%
Green	Light Green	F	Science	6.9%
	Bright Green	L	Science	1.1%
	Blue	H	Political Supporter	5.4%
	Pink	C	Political Supporter	10.0%
	Cyan	K	Arts & Entertainment	1.9%

Super-community

- National elite
- Other
- International sci-health
- Political

Towards the full picture



Example

RESEARCH ARTICLE | PSYCHOLOGICAL AND COGNITIVE SCIENCE

Officer characteristics in fatal officer-involved shootings

David J. Johnson, Trevor Tress, Nicole Burkel

Edited by Kenneth W. Wachter, University of California, Berkeley

July 22, 2019 | 116 (32) 15877-15882 | <https://doi.org/10.1073/pnas.2014148117>

THIS ARTICLE HAS BEEN CORRECTED +

THIS ARTICLE HAS A REPLY

RETRACTION | JULY 10, 2020 |

Retraction for Johnson et al., Officer characteristics in fatal officer-involved shootings

VIEW RELATED CONTENT +

THIS ARTICLE HAS A REPLY

739,057 37



Officer characteristics in fatal officer-involved shootings

Overview of attention for article published



About this Attention Score

In the top 5% of all research outputs scored by Altmetric

MORE...

Mentioned by

- 80 news outlets
- 19 blogs
- 3235 tweeters
- 2 Facebook pages
- 11 Wikipedia pages
- 12 Redditors
- 1 Q&A thread

RETRACTION |



Retraction for Johnson et al., Officer characteristics and racial disparities in fatal officer-involved shootings

July 10, 2020 | 117 (30) 18130 | <https://doi.org/10.1073/pnas.2014148117>

VIEW ORIGINAL ARTICLE +

35,738 2

PSYCHOLOGICAL AND COGNITIVE SCIENCE
disparities in
Carley Taylor,
10.1073/pnas

07 Oct 2022

 JuiceMayo
@JuiceMayo5

@NeonTachyon @K...
<https://t.co/848d4Lv>
<https://t.co/GXbzVm>
<https://t.co/n0CWjT>

04 Oct 2022

The authors wish to note the following: "Our article estimated the role of officer characteristics in predicting the race of civilians fatally shot by police. A critique pointed out we had erroneously made statements about racial differences in the probability of being shot (1), and we issued a correction to rectify the statement (2).

Despite this correction, our work has continued to be cited as providing support for the idea that there are no racial biases in fatal shootings, or policing in general. To be clear, our work does not speak to these issues and should not be used to support such statements. We take full responsibility for not being careful enough with the inferences made in our original report, as this directly led to the misunderstanding of our research.

While our data and statistical approach were appropriate for investigating whether officer characteristics are related to the race of civilians fatally shot by police, they are inadequate to address racial disparities in the probability of being shot.

Given these issues and the continued use of our work in the public debate on this topic, we have decided to retract the article."

Possible research questions

- How are scientific publications used in societal debates and how does their usage differ across "sides" in societal debates?
- Do scientific publications contribute to social media “echo chambers”?
- Are different "sides" of a societal debate also reflected in debates in the scientific literature?
- Do scientists engage in societal debates, and what role do their publications play?
- Does the scientific literature play a role in exacerbating societal polarisation, or does it diminish it?
- Does opening up the scientific literature risk easier misuse of scientific evidence, and thereby increase societal polarisation? Or does it lead to an open common base of evidence, thereby converging different sides of a debate?
- Is there a “medialisation” of science, in which scientific facts are misinterpreted or exaggerated to attract media attention

Thank you!

Suggestions, comments or questions?

Vincent Traag

 @vtraag

 v.a.traag@cwts.leidenuniv.nl