



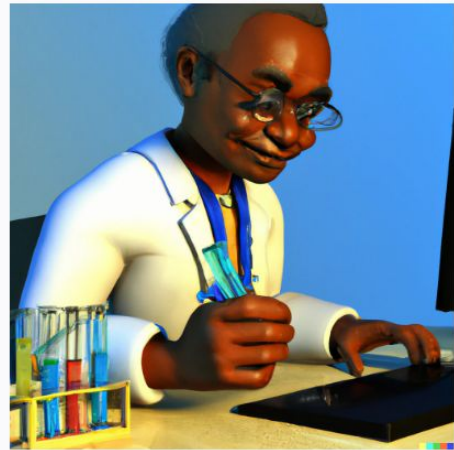
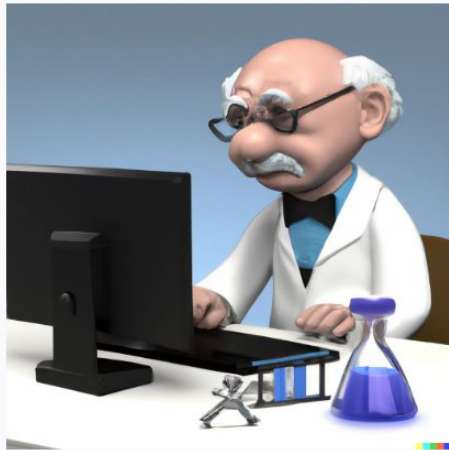
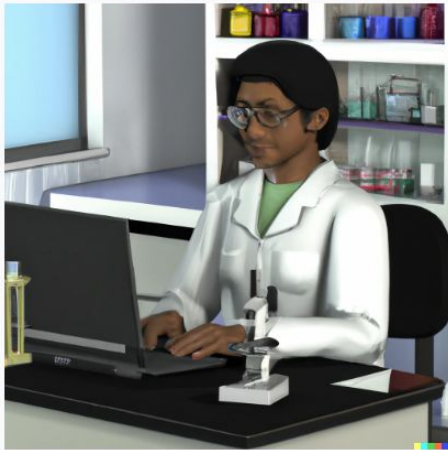
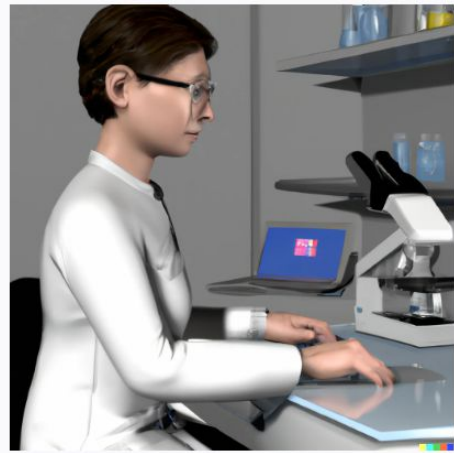
Přírodovědecká
fakulta

Univerzita Palackého
v Olomouci

Etika ve vědě – osobní postřehy členů Etické komise PŘF UP

členové Etické komise Přírodovědecké fakulty Univerzity Palackého v Olomouci
doc. Ivan H. Tuf a dr. Jiří Kvita

FZÚ AV ČR
19.10.2023



Anotace

Anotace

Etika je nedílnou součástí vědecké práce, už jen z hlediska společenské odpovědnosti vědecké komunity placené z veřejných prostředků či pro samotné prohlubování lidských znalostí pro budoucí generace. Kde jsou etické hranice zpracování dat, publikační etiky autorů ale i praxí časopisů? V čem mohou spočívat motivace a techniky porušování či posouvání těchto hranic? Jak si zachovat integritu, a jak rozeznat problémy spojené s manipulacemi, falzifikací či fabrikací dat, ale i “měkčími” nástroji, jak dosáhnout “vědecké” publikace?



doc. Ivan Hadrián Tuf vystudoval zoologii, ekologii a psychologii na UP v Olomouci a působí na Katedře ekologie a životního prostředí PŘF UP. Kromě studia půdní fauny se zajímá o rozhodovací mechanismy - zvířat i lidí. Z vděčnosti ke společnosti, která jeho práci platí, popularizuje vědu na stránkách časopisu Vesmír (což ho ale také baví).

dr. Jiří Kvita vystudoval experimentální částicovou fyziku na MFF UK. Působí ve Společné laboratoři optiky UP a AV ČR na PŘF UP, zabývá se částicovou fyzikou v rámci experimentů ATLAS či Hyper-Kamiokande a rád popularizuje fyziku a vědu obecně, např. v rámci projektu Badatel UP.



Plán



Disclaimer

- Osobní pohled přírodovědců, kteří byli do Etické komise PŘF UP zvoleni jejím akademickým senátem na návrh členů akademické obce.
- Nejsme odborníky na etiku samotnou!
- Nejsme ani odborníky na etiku v přírodních vědách či ve vědě jako takové.
- Dostali jsme se k některým tématům a rádi předáme a zmíníme některé zkušenosti, které jsme získali nad řešením některých dilemat.
- Téma si neklademe za cíl prezentovat komplexně.

Ethics – The Good Place

- Chidi Anagonye, Professor of Ethics and Moral Philosophy, teaching Eleonor
- https://harvardpress.typepad.com/hup_publicity/2020/01/ethics-101the-good-place-a-reading-list.html
- <https://www.yahoo.com/entertainment/10-lessons-learned-good-place-182549757.html>

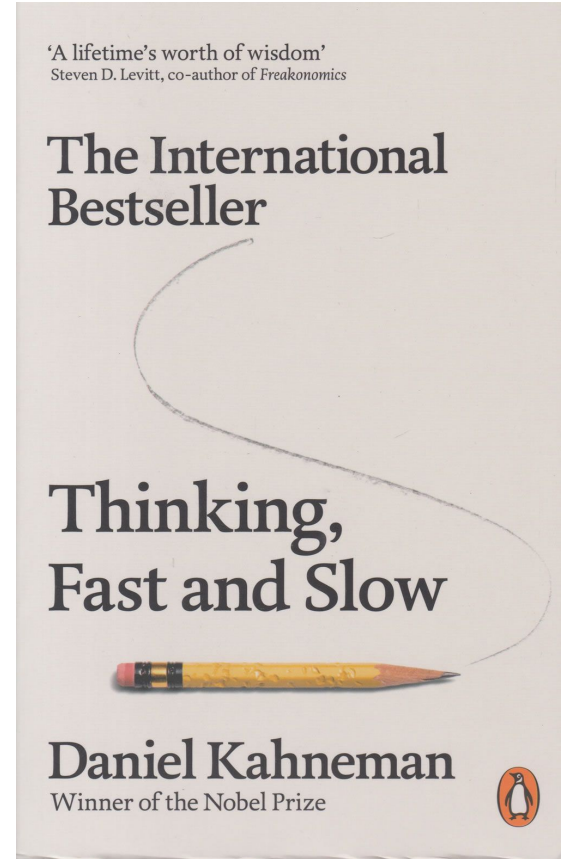


**(Auto) Pasti aneb
(Ethical) Judgements
Cognitive Ease and Biases**

...nebezpečí pro editory i autory:)

Confirmation Bias

- **Daniel Kahneman: Thinking Fast and Slow:**
“A deliberate search for confirming evidence, known as a positive test strategy... Contrary to the rules of philosophers of science, who advice testing hypotheses by trying to refute them, people (and scientists, quite often) seek data that are likely to be compatible with the beliefs they currently hold.”
- Pozor na výběr z dat na podsoubory, které např. potvrzují subjektivně preferovanou hypotézu.
- Zaslepení finálních výsledků do finalizace výběru a kontroly na kontrolním vzorku.
- Reprodukovat výsledek vs. publikování fluktuace.



(Subjective) Data Selection

Oil drop experiment, elementary charge

<https://onlineethics.org/cases/ethics-science-classroom/millikan-case-discrimination-versus-manipulation-data>

An examination of Millikan's own papers and notebooks reveals that he picked and chose among his drops. That is, he exercised discrimination with respect to which drops he would include in published accounts of the value of e , leaving many out. Sometimes he mentioned this fact, and sometimes he did not. Of particular concern is the fact that in his 1913 paper, presenting the most complete account of his measurements of the charge on the electron, **Millikan states "It is to be remarked that this is not a selected group of drops but represents all of the drops experimented upon during 60 consecutive days."** However, Millikan's notebook shows that of **189 observations** during the period in question, only **140 are presented** in the paper.

The Nobel Prize in Physics 1923

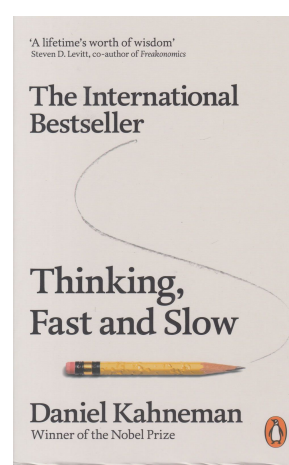


Photo from the Nobel
Foundation archive.
Robert Andrews
Millikan
Prize share: 1/1

The Nobel Prize in Physics 1923 was awarded to Robert Andrews Millikan "for his work on the elementary charge of electricity and on the photoelectric effect"

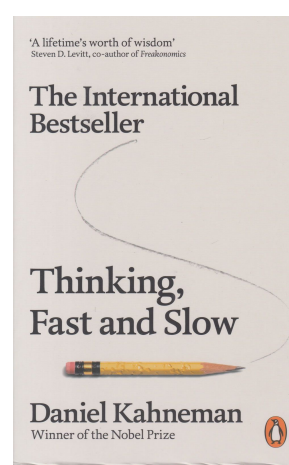
Halo Effect, Framing

- **Daniel Kahneman: Thinking Fast and Slow:**
Alan: intelligent, industrious, impulsive, critical, stubborn, envious
Ben: envious, stubborn, critical, impulsive, industrious, intelligent
- Correlated judgement and errors.
- Framing effect [https://en.wikipedia.org/wiki/Framing_effect_\(psychology\)](https://en.wikipedia.org/wiki/Framing_effect_(psychology))
 - 90% survived vs. 10% died
- “She knows nothing about this person’s management skills. All she is going by is the halo effect from a good presentation.”
- “They did not want more information to spoil their story.”



Favourite Sports: Jumping to Conclusions

- **Daniel Kahneman: Thinking Fast and Slow:**
- “The standard practice of open discussion gives too much weight to the opinions of those who speak early and assertively, causing other to line up behind them.”
- “We are pleased by the story consistency, not completeness!”
 - “Pozor na první dojem, většinou bývá správný?”:)
- “We often fail to allow for the possibility that evidence that should be critical to our judgement is missing.”
- “Knowing little makes it easier to fit everything you know into a coherent pattern.”



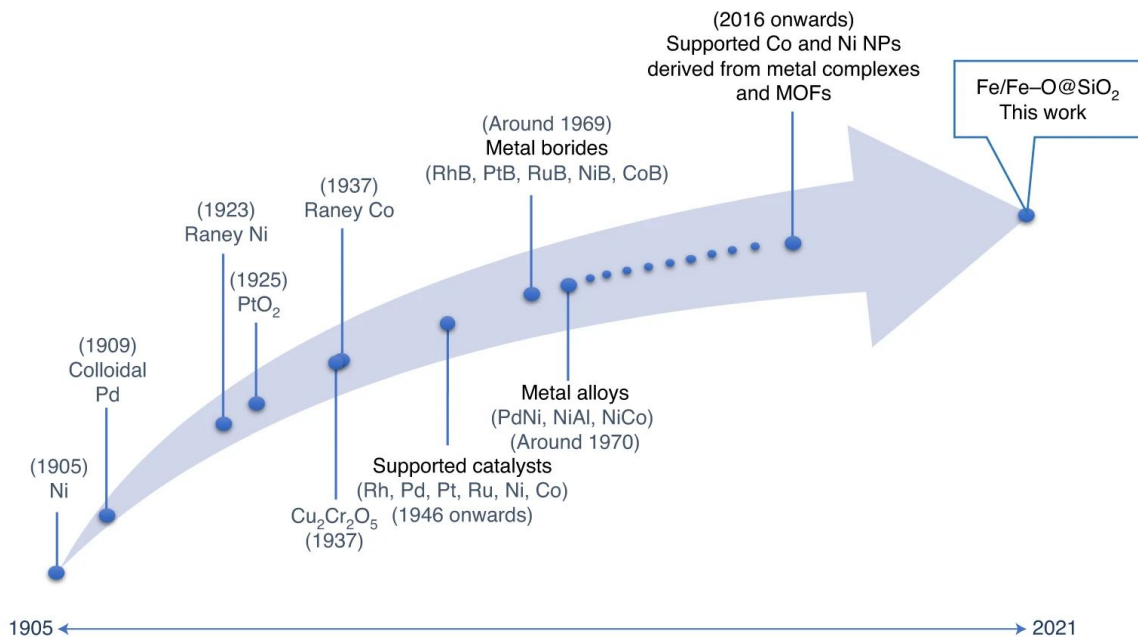
Thought leader

- Thought leader
 - TEDx Self-proclaimed “thought leader,” Pat Kelly gives his talk on “thought leadership”
 - https://www.youtube.com/watch?v=_ZBKX-6Gz6A&ab_channel=BCComedy



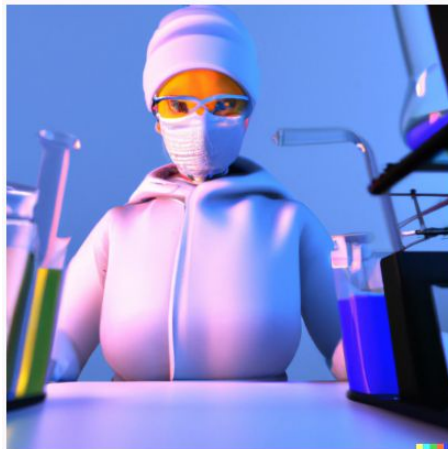
Halo Effect

<https://www.nature.com/articles/s41929-021-00722-x>



Papermills

- Citace článků nerelevantních k dané studii, či z jiných oborů, pro zvýšení citačního ohlasu konkrétních autorů.
- Připojování jmen (za úplatu) do autorského kolektivu opět za účelem zvýšení citačního ohlasu.
- <https://forbetterscience.com/2022/10/31/when-im-citing-you-will-you-answer-too/>
- <https://vesmir.cz/cz/casopis/archiv-casopisu/2023/cislo-9/paper-mill-novy-zpusob-kradezi-vedeckych-dat.html>
- <https://forbetterscience.com/category/paper-mills/>
- <https://www.editage.com/insights/how-paper-mills-damage-scholarly-work-and-public-trust-in-science>
- <https://forbetterscience.com/2023/02/28/i-rajender-varma-highly-cited-researcher/>
- <https://blog.mdpi.com/2022/05/09/paper-mills/>



Prolific Stars

- Článek každých 37 hodin...
 - <https://english.elpais.com/science-tech/2023-04-02/one-of-the-worlds-most-cited-scientists-rafael-luque-suspended-without-pay-for-13-years.html>
 - urychleno nástupem AI!
- <https://forbetterscience.com/2023/02/28/i-rajender-varma-highly-cited-researcher/>

SCIENTIFIC ETHICS >

One of the world's most cited scientists, Rafael Luque, suspended without pay for 13 years

The prolific chemist, who has published a study every 37 hours this year, has been sanctioned by the University of Córdoba over his research work for other institutions in Russia and Saudi Arabia

Prolific Stars

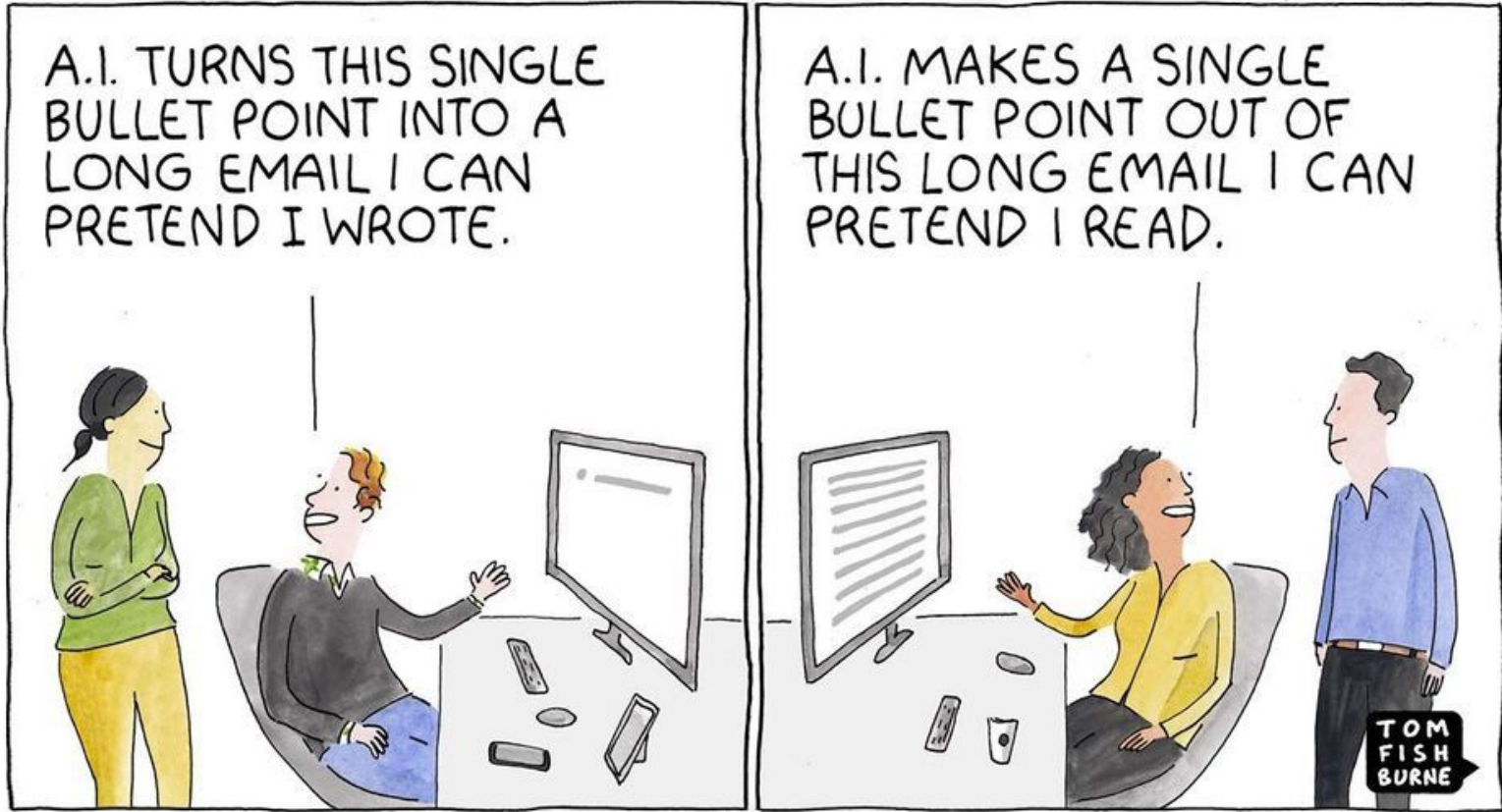
- Článek každých 37 hodin...
 - <https://english.elpais.com/science-tech/2023-04-02/one-of-the-worlds-most-cited-scientists-rafael-luque-suspended-without-pay-for-13-years.html>
 - urychleno nástupem AI!

“Without me, the University of Córdoba is going to drop 300 places [in the Shanghai ranking]. They have shot themselves in the foot,” said Luque, who attributed his suspension to “pure envy.”

Luque is constantly publishing papers. Last year he authored some 110 articles. So far this year he has published 58. The chemist admitted that since December, he has been using the [artificial intelligence program ChatGPT](#) to “polish” his texts. “These months have been quite productive, because there are articles that used to require two or three days and now I do them in one day,” he said. ChatGPT, launched in December, is capable

Prolific Stars

-



Fairness thoughts

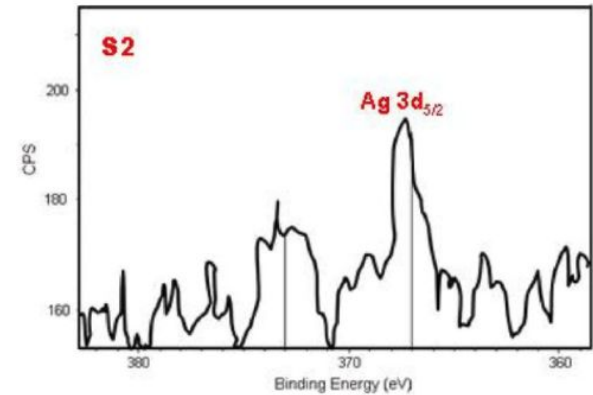
- What if I
 - find a mistake in my analysis?
 - find a mistake just before my paper submission?
 - find a mistake during the review process of my article?
 - find a mistake just before my paper resubmission deadline?
 - find a mistake after my paper is published?
 - find a mistake in a colleague's paper?
 - find an indication of data manipulation in colleague's paper?

<https://www.linkedin.com/pulse/facilitating-fairness-workplace-leslie-speas-ma-sphr-shrm-scp-cpc/>



Data issues

- **Missing primary data**
 - negligence, intended
 - cannot preprocess the data
- Selected data – need to describe how and why
- **Falsified data**
 - Manipulated data in an unethical / non-scientific way
- **Fabricated data**
 - made-up data
- Data presentation in a non-exact / non-transparent way
- There can be some other reason for all the above
 - mistake in entering a figure, data sequence to a graph
 - different accidents have different credibility, hard to judge
 - there is never a 100% certainty in what happened
- **Plagiarism**

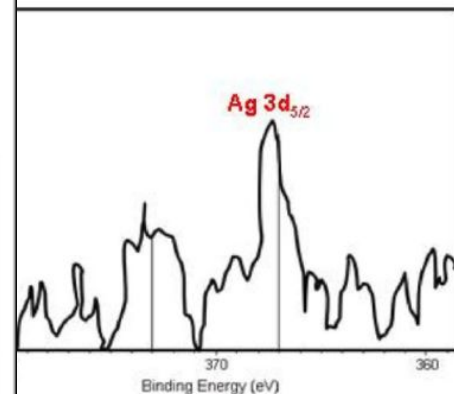
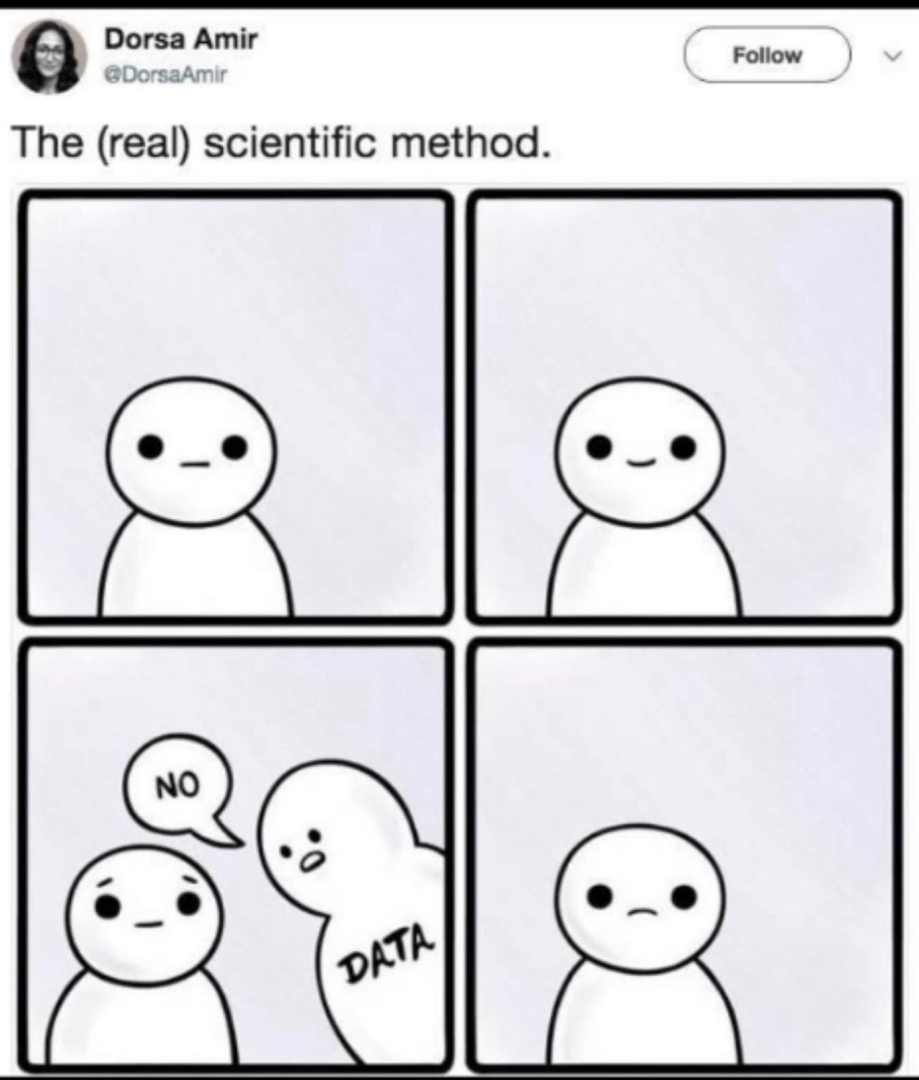


<https://www.springer.com/gp/authors-editors/editors/data-fabrication-data-falsification/4170>

Data issues

- Missing primary data
 - negligence,
 - cannot reproduce
- Selected data – data
- Falsified data
 - Manipulated
- Fabricated data
 - made-up data
- Data presentation
- There can be some errors
 - mistake in error
 - different
 - there is
- Plagiarism

<https://www.sp>



<https://www.sp>-falsification/4170

Retrakce

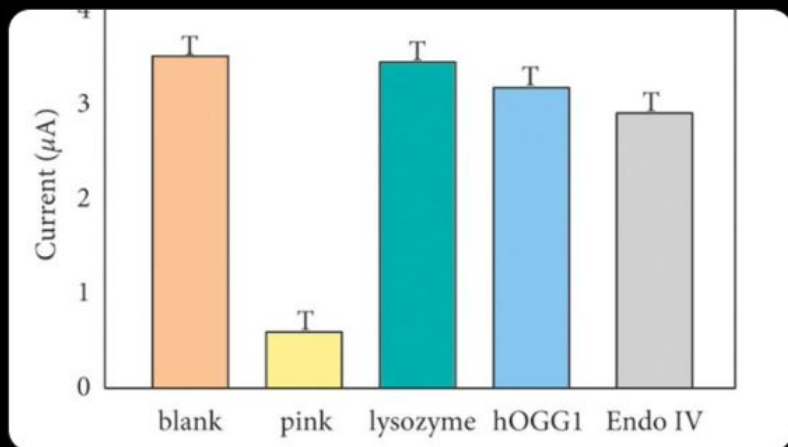
- <https://retractionwatch.com/2022/12/05/a-paper-used-capital-ts-instead-of-error-bars-but-wait-theres-more/>
- <https://retractionwatch.com/2022/12/22/that-paper-with-the-t-error-bars-was-just-retracted/>



Josemari Feliciano
@jmtfeliciano

Wait a second, these are not real error bars ... the author literally just put the letter “T” above the bar graphs 😬

Přeložit post



11:22 odp. · 28. 11. 2022



541



6 078



53,7 tis.

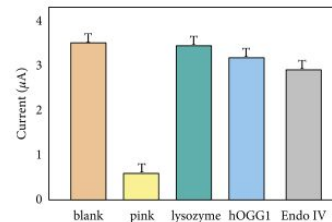


1 649



That paper with the ‘T’ error bars was just retracted

Remember the paper that made the rounds on Twitter after readers discovered that the error bars in one of its figures were really just capital Ts?



Well, it’s now been retracted, with the notice citing “concerns about the article’s scientific reliability.”

Střet zájmů – Conflict of / Competing interests

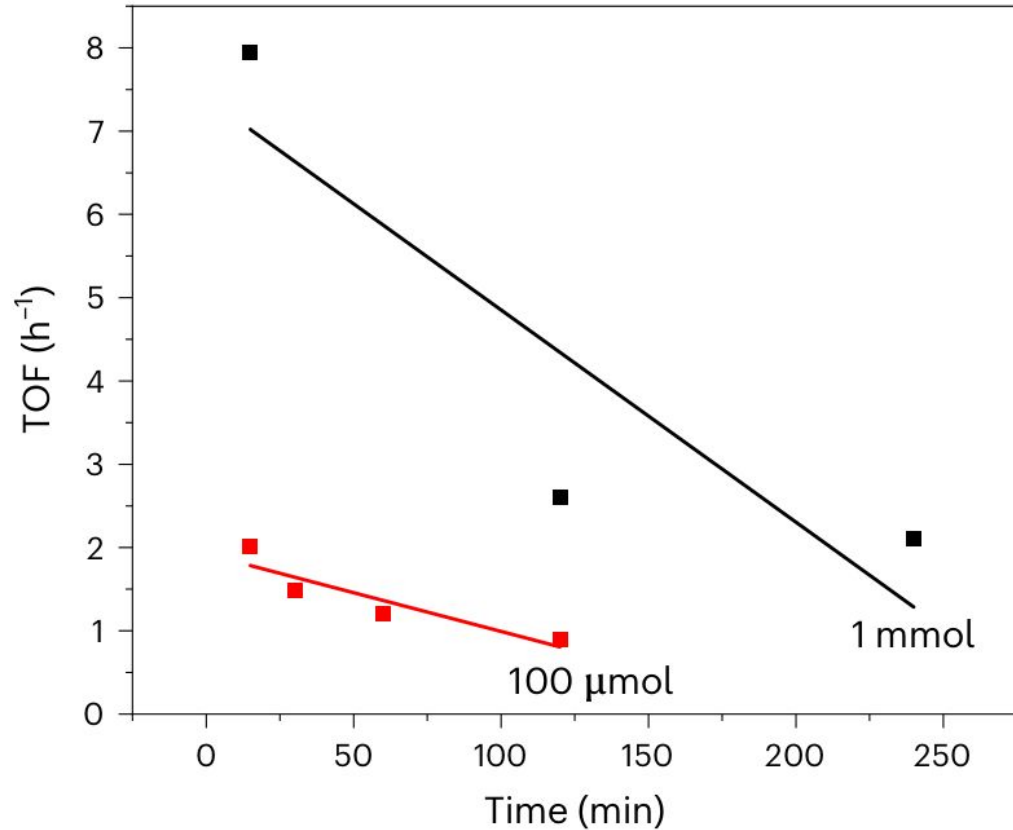
- Často nutno čestně deklarovat při vkládání článku do redakčního systému.
- Deklarace, že autor nemá žádný osobní zájem...
 - např. (spolu)vlastnictví firmy, která produkuje zkoumaný vzorek
 - přijatý článek by firma mohla použít jako reklamu pro zvýšení tržby
 - aktivní žádost o patent spojený s výzkumem
- ...či střet zájmů
 - např. s některými recenzenty, a naopak z jejich strany
- Deklarace autorského podílu a rolí v článku
 - nevynechat autory, kteří přispěli
- Deklarace zdrojů pro výzkum
 - granty, dary
 - firmy se zájmem na určitý výsledek výzkumu...

could affect, or could be
perceived to affect,

- <https://www.biomedcentral.com/getpublished/writing-resources/competing-interests>
- <https://www.nature.com/nature-portfolio/editorial-policies/competing-interests>
- https://www.youtube.com/watch?v=MI0XQLQEqAc&ab_channel=CambridgeUniversityPress
- https://www.youtube.com/watch?v=auePL3pYRb0&ab_channel=McCombsSchoolofBusiness

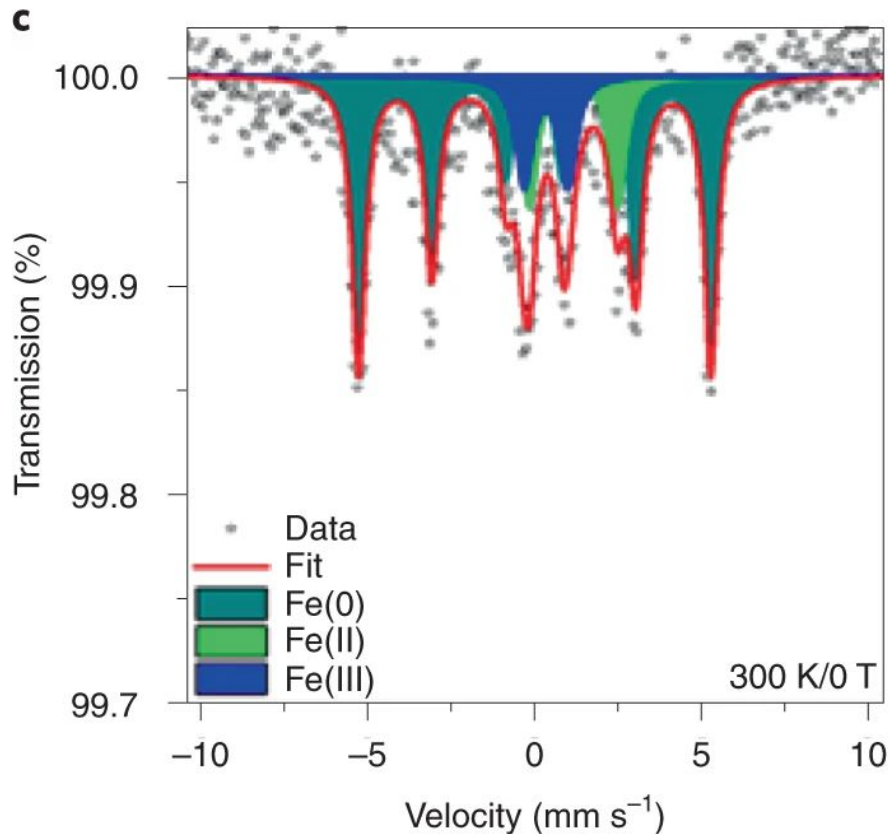
Spektra...

- Odlišné standardy v různých disciplínách?
- Neurčitosti datových bodů a fitu?
 - k čemu proložená křivka
 - a co na to studenti?
- <https://www.nature.com/articles/s41565-023-01353-y>



Spektra...

- Odlišné standardy v různých disciplínách?
- Vektorová grafika vs bitmapa?
- Why?
- <https://pubpeer.com/publications/0B0501B4B3DD813637924814CA3209#3>



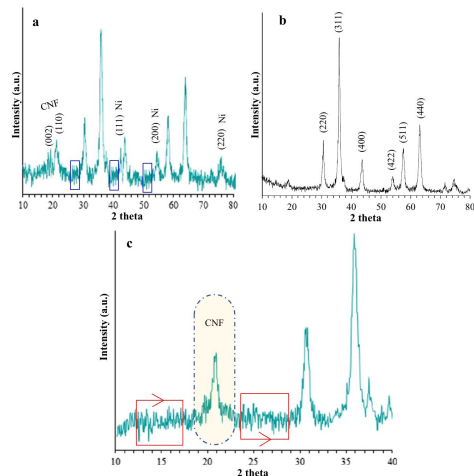
<https://www.nature.com/articles/s41929-021-00722-x/figures/5>

Nature Catalysis (Nat Catal) ISSN 2520-1158 (online)

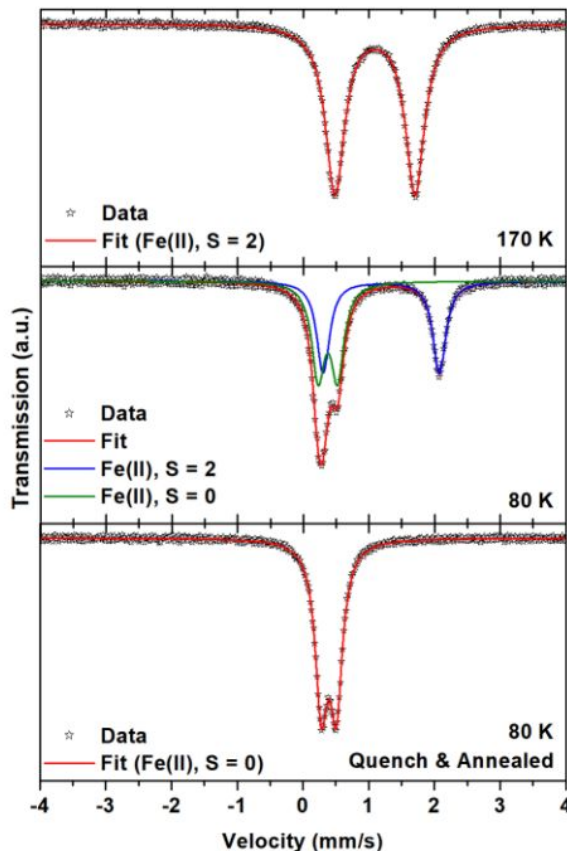
Spektra...

- Preprint vs. published versions of the same (?) spectra.
- Why?
- <https://pubpeer.com/publications/5E8F10828DD327F0FA62B3B528EDEA#7>

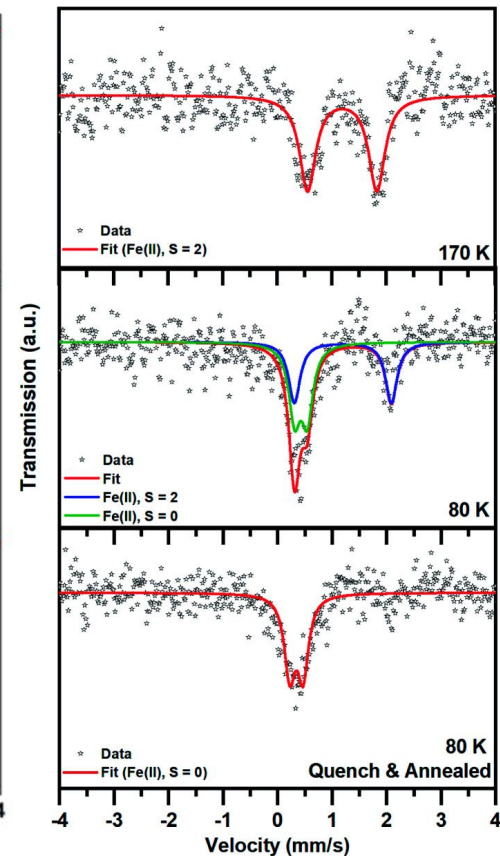
Fig. 7 Comparison XRD pattern of Fe₃O₄@CNF@Ni nanocomposite (a, and c: zoom) and Fe₃O₄ (b)



Preprint

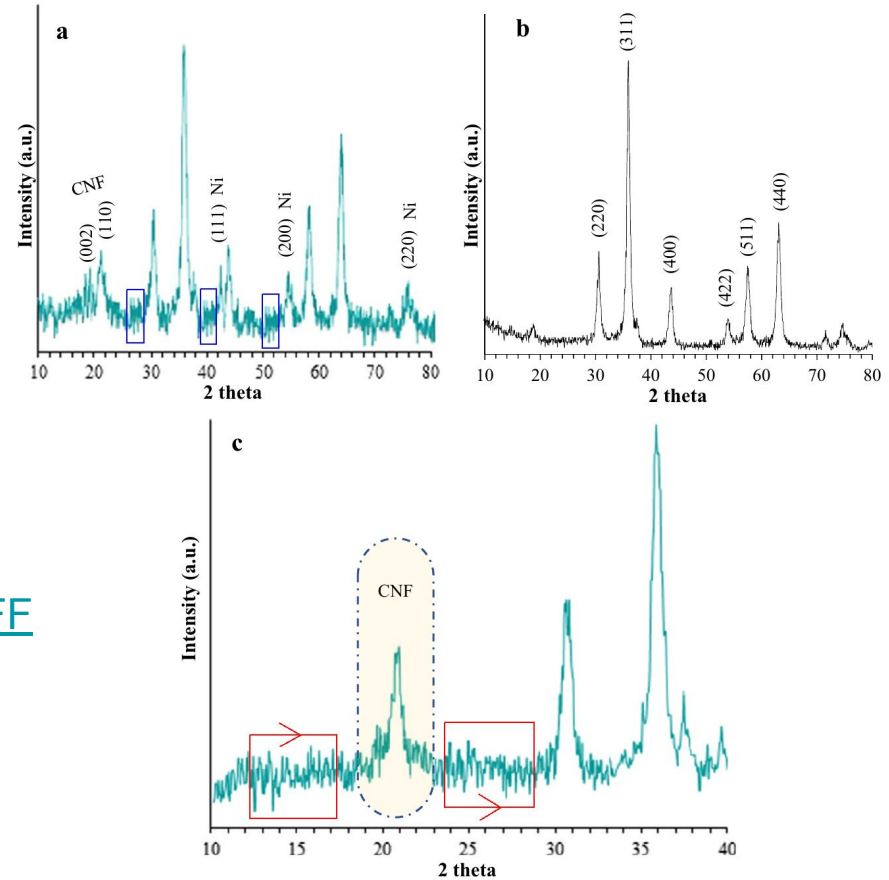


Published



Spektra...

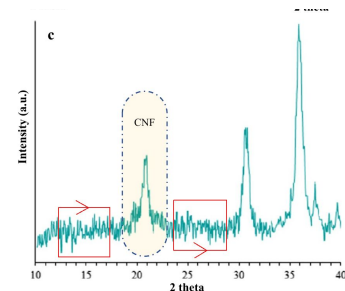
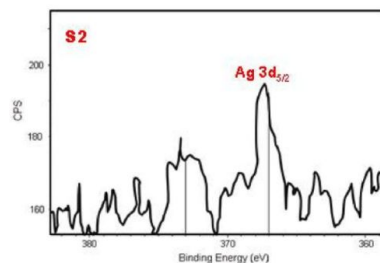
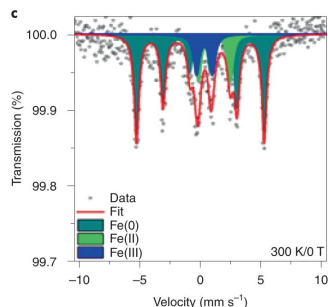
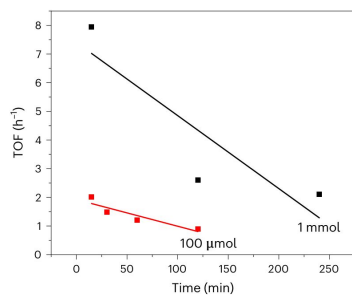
Fig. 7 Comparison XRD pattern of Fe_3O_4 @CNF@Ni nanocomposite (**a**, and **c**: zoom) and Fe_3O_4 (**b**)



- opakující se “šum”
- zrcadlení...
- <https://pubpeer.com/publications/157B95A7FF17F9AA5B9E2E2EC91E51>

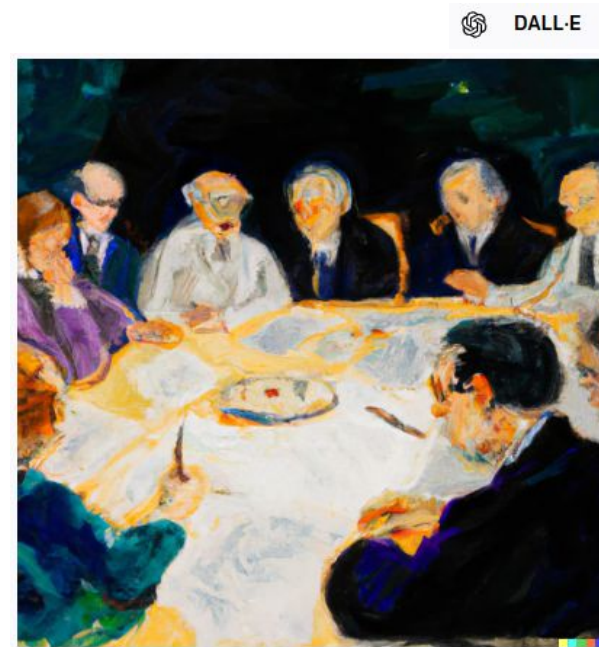
Proč toto prochází časopisy?

- Víceru metod, málo recenzentů, ti nejsou experty na všechny metody.
- Malé odborné kruhy u velmi expertních metod či oborů.
- Problém sehnat recenzenty, trpí jejich kvalita a kritičnost.
- “Atraktivnost příběhu”, potenciální průlom atd. nad kvalitou dat, framing effect, recenzent si potvrzuje dobrý dojem a nehledá skuliny.
- Recent autora zná, toto nepřízná, a může jít o reciproční výměnný obchod...
- Krize některých oborů?
- Proliferace časopisů a celkově klesající úroveň prací?
- Přesto je stále mnoho dobrých časopisů, které mnoho rukopisů zamítají!



Úloha etických komisí

- Úlohou etické komise je posuzovat etické aspekty
 - práce s daty, jejich uchování
 - obecné zásady zpracování a nakládání s daty
 - práce s experimentálními subjekty, lidmi, laboratorními zvířaty
- EtK by měly dbát na
 - dodržování publikační etiky, autorství, prvoautorství, korespondenčního autora, jejich zodpovědnosti
 - nezamlčování skutečností spojených s publikováním (osobní ekonomické zájmy, osoby blízké v redakční radě apod) – střety zájmu apod.



COPE = Committee on Publication Ethics

<https://publicationethics.org/>

<https://publicationethics.org/guidance/Case>

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About COPE

☰ Governance Strategy Trustees Council COPE team History

COPE (Committee on Publication Ethics) is committed to educating and supporting editors, publishers, universities, research institutes, and all those involved in publication ethics. COPE aims to move the culture of publishing towards one where ethical practices become a normal part of the culture itself. Our approach is firmly in the direction of influencing through education, resources and support of our members, alongside the fostering of professional debate in the wider community.

Jak fungují EtK?

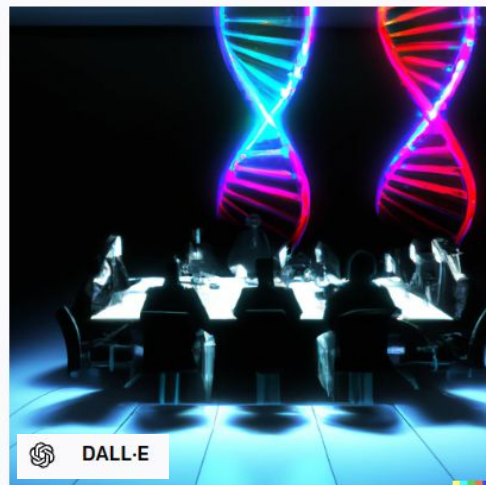
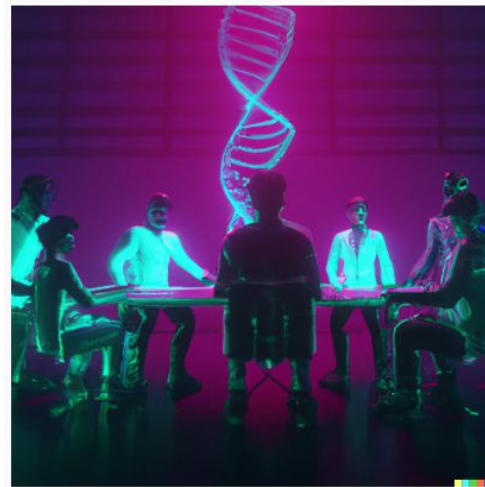
- EtK se mohou rozhodnout jen na základě získaných informací
 - autorů publikace, expertů
- EtK se mohou mýlit, ale snaží se rozhodovat kolektivně a na základě získané evidence.
- Často nelze zrekonstruovat motivaci, průběh manipulace apod.
- EtK není policií ani soudem.
- Zbývá tak konstatování, zda k porušení etiky došlo či nikoli.

 DALL-E



Podstata funkce etických komisí

- Typicky poradní orgány rektora, děkana, senátu, vedení dané instituce
- Nejde o práci soudce ani policie
 - komise zkoumá, zve si aktéry, odborníky
 - vydává doporučení na základě získaných informací, výpovědí, expertních posudků.
- Komise vydává usnesení, stanovisko, případně doporučení pro nápravu, zamezení opakování dané situace apod.
- Komise není exekutivním orgánem.



Podstata funkce etických komisí

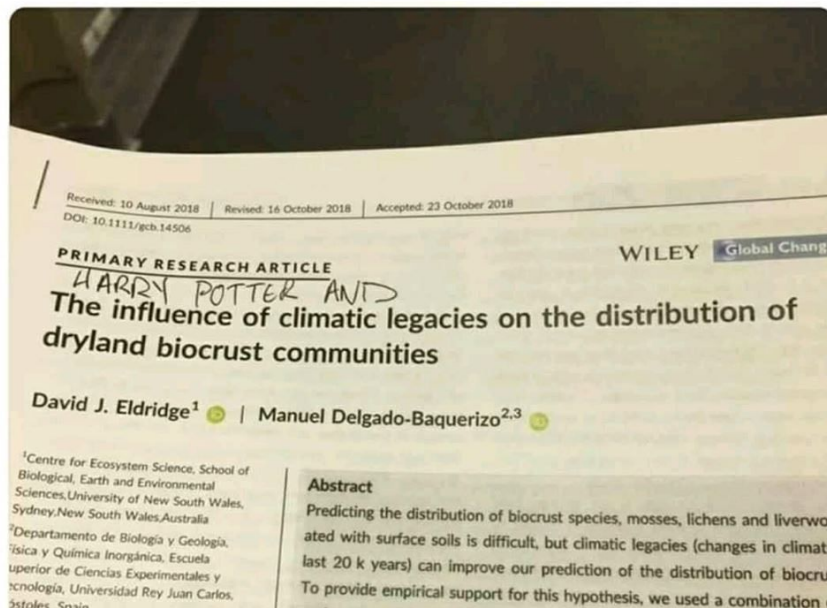
- Komise nezkoumá odbornost daného tématu
 - nutně ani vědeckou správnost výsledku či závěrů, to je na dané odborné komunitě.
 - spíše zkoumá správnou aplikaci obecných postupů.
 - nejde o odbornou komisi ve smyslu redakční rady časopisu apod.



Marc W Van Goethem

@marcwg

Trying to be an adult and read a scientific paper and your wife does this...



Etické problémy ve vědecké práci?

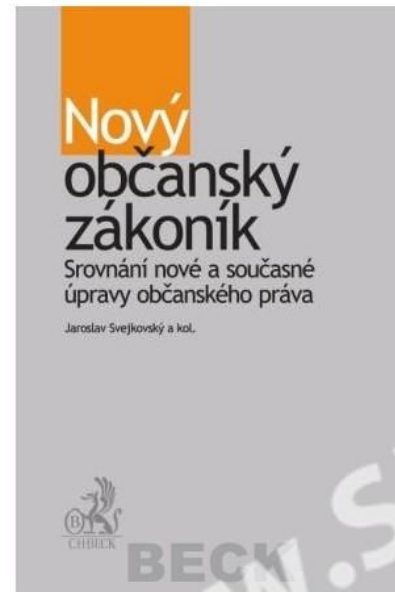
- Lidský faktor i v exaktních vědách:)
- Etika není zákon, ale princip.
- Často obtížné rozeznat či jasně definovat hranice.
- Povinnost instituce vytvářet prostředí, které napomáhá eticky zdravému výzkumu

<https://www.evscienceconsultant.com/blog/the-7-most-frequent-reasons-for-manuscript-rejection>



Za hranice EtK

- Osobní spory
- Občanskoprávní spory např. se zaměstnavatelem
- Porušení norem, zákoníku práce
- Svoboda slova, diskuze
- Disciplinární komise
 - studijní řád
- Role a úřad ombudsmana.



Why?

- Příčiny
 - Chyba, nedbalost, přehlédnuté okolnosti, hranice metody, chybějící kritická otázka či přístup, náhoda...
 - Postupná relativizace postupu, “kluzký svah”.
 - Tlak prostředí, komunity, ekonomické tlaky, akademický postup...

NUMBER OF SEARCH RESULTS ON GOOGLE SCHOLAR

	PHYSICS	CHEMISTRY	BIOLOGY	ENGINEERING	PSYCHOLOGY	THEOLOGY	DENTISTRY
THEORETICAL	3,990,000	445,000	553,000	2,460	15,500	726	41
QUANTUM	478,000	740,000	7,620	21,100	699	447	NONE
HIGH-ENERGY	844,000	9,600	3	119	1	NONE	NONE
COMPUTATIONAL	510,000	599,000	2,910,000	67,400	4,620	40	11
MARINE	3,920	136,000	945,000	108,000	35	6	1
ASTRO-	2,010,000	20,600	226,000	430	64	580	NONE

POTENTIAL RESEARCH OPPORTUNITIES: QUANTUM DENTISTRY,
HIGH-ENERGY DENTISTRY, ASTRODENTISTRY, AND HIGH-ENERGY THEOLOGY

Why?

- “Publish or perish”
- Grant / project indicators
- Pressure from project/institutional heads
- Career advance / acceleration
- Improve CV for further grants applications
 - H-index
- Every metric can be misused or become the primary target instead of science itself
- Whenever there is a possibility, there would be someone to try

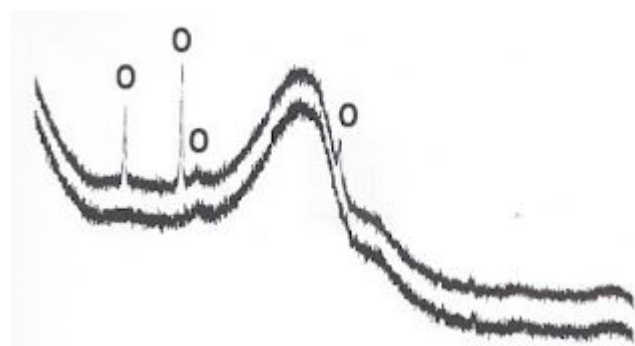
Manuscript
submitted



Manuscript
accepted



Perličky



- Ano, data jsou dobře/špatně/nejsou/nemůžeme je dohledat.
- Data nemáme, ale přeměřením jsme ověřili, že vědecké závěry článku jsou OK.
- Data nemůžeme poskytnout, neboť nikdo jiný jim nerozumí, jsou naším vlastnictvím, není jasné, která to jsou a někdo by je mohl špatně interpretovat.
- Ano, obrázek je špatně, ale ani jeho odebrání nezmění závěry naší studie.
- Ano, ale ty spoluautory neznám.
- Ano, jsem korespondenční autor, ale tato data měřil kolega XY.

Možné komplikace

- Etický problém u osoby
 - vážené, titulované, nesoucí a slibující granty, spoluprácu, rostoucí renomé instituce, její růst na žebříčcích...
 - činné ve strukturách, senátech či vedení fakulty, univerzity, ústavu, akademie...
 - která má přímý vliv na dostudování studentů či udělování akademických hodností



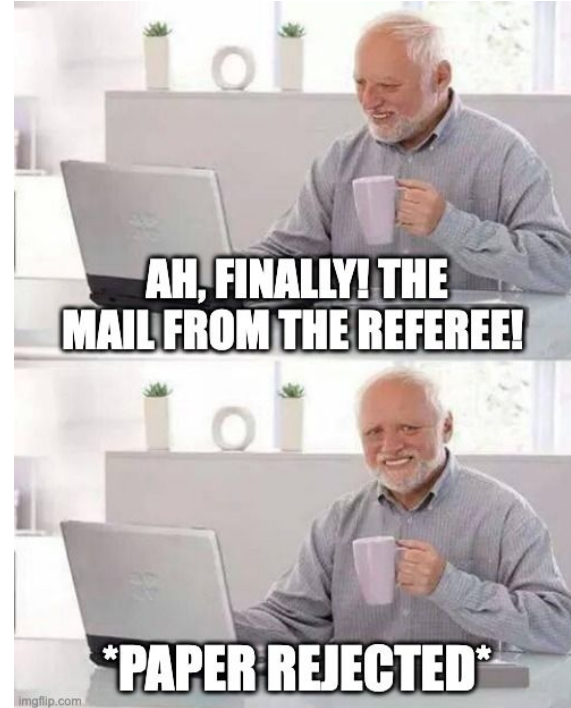
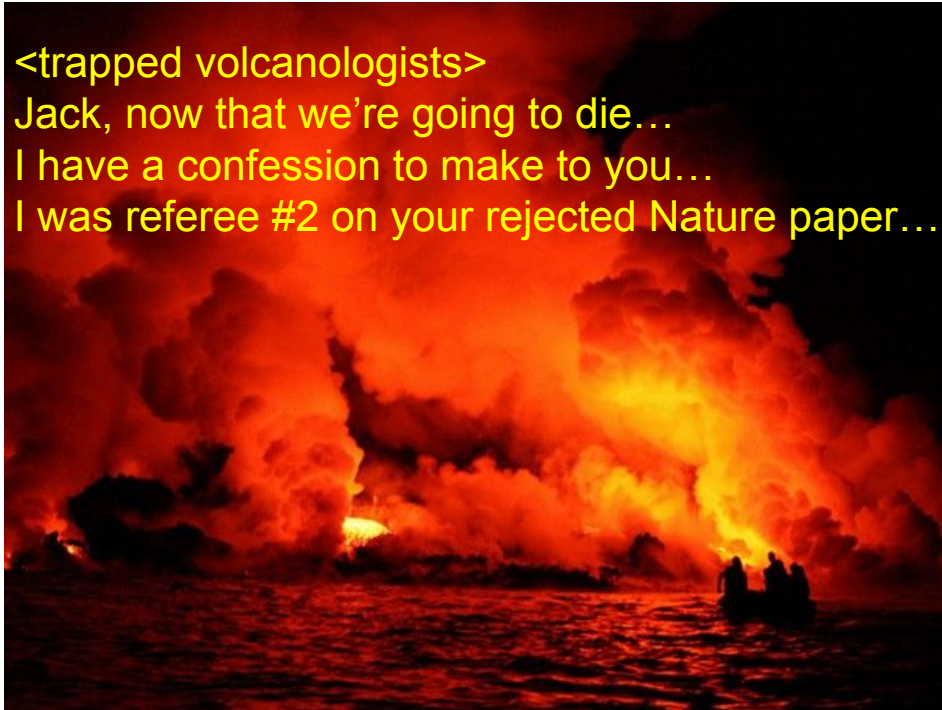
Without me, the University of Córdoba will drop 300 places in the Shanghai ranking. They have shot themselves in the foot

Rafael Luque, chemist

Na druhou stranu...

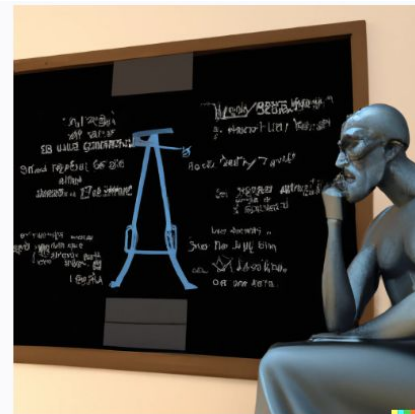
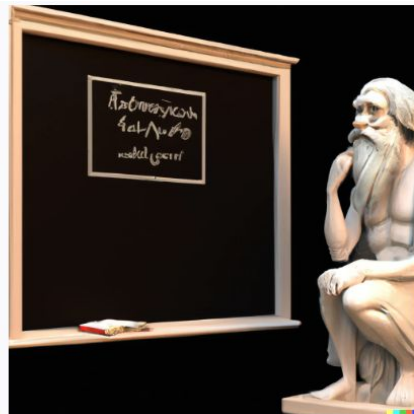
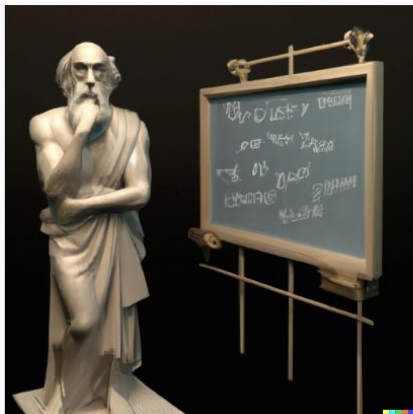
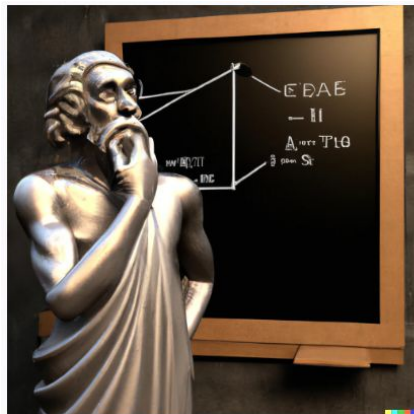
- Každý má právo se hájit, vysvětlit svůj postoj, pohled, okolnosti
- Pozor na předsudky, stereotypy, misjudgement, halo effect, framing, priming...

<trapped volcanologists>
Jack, now that we're going to die...
I have a confession to make to you...
I was referee #2 on your rejected Nature paper...



A proto...

- Kolektivnost etických orgánů
 - složení, pestrost, vyváženost, zahrnutí studentů
 - nezávislost, externí členové?
 - externí posudky
 - mimo politický vliv
 - možnost posuzovat kohokoli



DALL-E

Replication crisis

- Experiments reproducibility
- Publication of positive outcomes only
- Publish also negative outcomes
- <https://journals.plos.org/plosmedicine/article?id=10.1371/journal.pmed.0020124>
- https://upload.wikimedia.org/wikipedia/commons/8/8e/loannidis_%282005%29_Why_Most_Published_Research_Findings_Are_False.pdf

Open access, freely available online

Essay

Why Most Published Research Findings Are False

John P.A. Ioannidis

Summary

There is increasing concern that most current published research findings are false. The probability that a research claim is true may depend on study power and bias, the number of other studies on the same question, and, importantly, the ratio of true to no relationships among the relationships probed in each scientific field. In this framework, a research finding is less likely to be true when the studies conducted in a field are smaller; when effect sizes are smaller; when there is a greater number and lesser preselection of tested relationships; where there is greater flexibility in designs, definitions, outcomes, and analytical modes; when there is greater financial and other interest and prejudice; and when more teams are involved in a scientific field in chase of statistical significance. Simulations show that for most study designs and settings, it is more likely for a research claim to be false than true.

factors that influence this problem and some corollaries thereof.

Modeling the Framework for False Positive Findings

Several methodologists have pointed out [9–11] that the high rate of nonreplication (lack of confirmation) of research discoveries is a consequence of the convenient, yet ill-founded strategy of claiming conclusive research findings solely on the basis of a single study assessed by formal statistical significance, typically for a p -value less than 0.05. Research is not most appropriately represented and summarized by p -values, but, unfortunately, there is a widespread notion that medical research articles

It can be proven that most claimed research findings are false.

is characteristic of the field and can vary a lot depending on whether the field targets highly likely relationships or searches for only one or a few true relationships among thousands and millions of hypotheses that may be postulated. Let us also consider, for computational simplicity, circumscribed fields where either there is only one true relationship (among many that can be hypothesized) or the power is similar to find any of the several existing true relationships. The pre-study probability of a relationship being true is $R/(R+1)$. The probability of a study finding a true relationship reflects the power $1 - \beta$ (one minus the Type II error rate). The probability of claiming a relationship when none truly exists reflects the Type I error rate, α . Assuming that c relationships are being probed in the field, the expected values of the 2×2 table are given in Table 1. After a research finding has been claimed based on

Druhá strana barikády :: Predátorské časopisy



- Aneb Kde je poptávka, tam je i nabídka...
- Jeffrey Beall: Beall's list <https://beallslist.net/>
- Problematické open access žurnály.
- Časopisy s impaktním faktorem ale často s vyšším poplatkem
 - a jednodušším recenzním řízením.
- Šedá zóna: MDPI
 - <https://en.wikipedia.org/wiki/MDPI#Controversies>
 - ale jde o širší rodinu časopisů s různým stupněm důvěry
 - 6.5k zaměstnanců
 - pozvání přispět do “special issue”
 - pozvání stát se editorem
 - současně nabídka publikovat v jiném čísle svou práci za nižší poplatek...
 - Ostražitost:
 - hlídat si jednoduchost recenzního řízení
 - Emaily “dear professor...” zvučí do editorial boards, na konference, invited speaker...
 - Doporučení: publikaci minulou neskrývat, uvést, nestavět na ni, vysvětlit okolnosti

Predátorské časopisy ... ale i konference

- Velké rozdíly:
 - Některé poplatky pouze “processing fee”
 - Jinde “Article Processing Charge (APC)” zahrnuje i jazykovou korekci apod.
 - <https://www.nature.com/nature/for-authors/publishing-options>

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- 2 – Gold Open Access** – same publishing process as above. The difference is that when an article is accepted for publication, the author/s or funder/s pay an Article Processing Charge (APC). The final version of the published article is then free to read for everyone. The APC to publish Gold Open Access in *Nature* is €9,750 / \$11,690 / £8,490.



https://www.extralife.cz/fotky/nejbohatsi-filmove-postavy_42573/10

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The Article Processing Charge (APC) is the amount authors are charged when their manuscript is accepted for publication. APCs cover the following:

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- **Technical infrastructure and innovation:** development, maintenance and operation of online journal systems and websites.
- **Production of articles:** formatting, lay-out and mark-up of articles, copy editing and inclusion in indexing services.
- **Promotion of journal and content:** making sure readers and authors know about the work published in the journal.
- **Customer service:** responding to the needs of authors and readers.

The growing inaccessibility of science

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nature

Commentary | Published: 30 April 1992

The growing inaccessibility of science

Donald P. Hayes

Nature 356, 739–740(1992) | Cite this article

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Nature 356, 739–740 (1992) | Cite this article

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That science has become more difficult for nonspecialists to understand is a truth universally acknowledged. Here is a measure of the extent of the process.

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Donald P. Hayes

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Published: [01 September 1956](#)

The Neutrino

[FREDERICK REINES](#) & [CLYDE L. COWAN](#)^{jun.}

Nature **178**, 446–449 (1956) | [Cite this article](#)

2805 Accesses | **128** Citations | **60** Altmetric | [Metrics](#)

 An [Erratum](#) to this article was published on 08 September 1956

EACH new discovery of natural science broadens our knowledge and deepens our understanding of the physical universe; but at times these advances raise new and even more fundamental questions than those which they answer. Such was the case with the discovery and investigation of the radioactive process termed 'beta decay'. In this process an atomic

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Editorial Summary


The neutrino – the mystery and the discovery

In the 1920s, physicists were confused: the phenomenon of β decay (in which an electron is emitted from the atomic nucleus) seemed to violate conservation laws. The energy spectrum of the electrons, [show all](#)

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Sci-Hub is the most controversial project in modern science. The goal of Sci-Hub is to provide **free and unrestricted** access to all scientific knowledge.

Naše zodpovědnost

- Vědec má zodpovědnost
 - vůči společnosti, která jej podporuje
 - vůči studentům a dalším generacím vědců, které vychovává
 - vůči oboru, jehož hranice a poznání rozšiřuje
 - k výsledkům a jejich aplikaci a dopadu výzkumu.

<https://www.peerreview.co.nz/post/taking-responsibility>

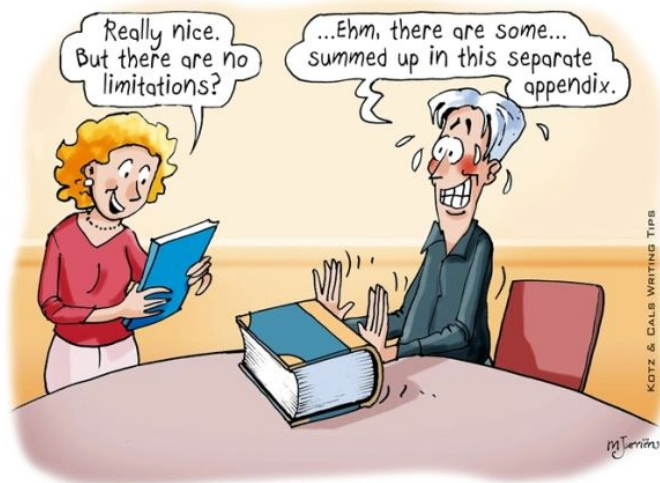


Zodpovědnost :: studenti

- vůči studentům a dalším generacím vědců, které vychováváme
 - nastavujeme
 - atmosféru, “kulturu” prostředí v týmu
 - způsob kontroly, komunikace
 - hloubku kritického myšlení a přístupu
 - způsob řešení a reportování chyb v týmu
 - respekt k metodám, jejich limitacím, k vlastním schopnostem a míře pochopení tématu
 - právo na autorský podíl



<https://scientificwritingtips.wordpress.com/the-cartoons/>



Tip 6 - Discussion: be frank in acknowledging limitations!

Autorství

- Prestiž, privilegium, přínos autorovi.
- Ale také závazek nést zodpovědnost
 - za výsledky, závěry, interpretaci
 - za data, jejich zpracování a dostupnost např. na vyžádání.

<https://www.icmje.org/recommendations/browse/roles-and-responsibilities/defining-the-role-of-authors-and-contributors.html>



2. *Who Is an Author?*

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

- Substantial contributions to the conception or design of the work; or the acquisition, analysis, or interpretation of data for the work; AND
- Drafting the work or reviewing it critically for important intellectual content; AND
- Final approval of the version to be published; AND
- 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.

Sites

- Researchgate
- Sci-hub
- Pubpeer
- Retraction Watch
- For Better Science
- Beall's list



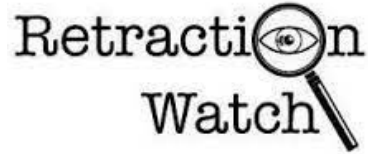
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For Better Science

BY LEONID SCHNEIDER, ON RESEARCH INTEGRITY, BIOMEDICAL ETHICS AND ACADEMIC PUBLISHING

Etika – Učená společnost ČR

- https://www.youtube.com/live/YK_j-fYtBZ4?si=DjisTmGLOiq3al2S



The image shows a screenshot of a YouTube video player interface. At the top, the YouTube logo and 'CZ' are visible on the left, and a search bar is on the right. The main content area has a dark red background with white text. The title 'Etika vědecké práce' is prominently displayed. Below it, the date and time 'úterý 15. 9. 2020, 16 h' are shown. A list of speakers follows: 'prof. PhDr. Olga Lomová, CSc.', 'prof. Ing. Jaroslav Petr, CSc.', 'prof. RNDr. Petr Slavíček, Ph.D.', and 'Mgr. et Mgr. Marek Vácha, Ph.D.'. Below the list, it says 'moderuje: RNDr. Ivo Starý, CSc.'. At the bottom, the video progress bar shows '0:06 / 1:58:45' and various control icons like play, volume, and settings.

YouTube CZ Search

Etika vědecké práce

úterý 15. 9. 2020, 16 h

prof. PhDr. Olga Lomová, CSc.
prof. Ing. Jaroslav Petr, CSc.
prof. RNDr. Petr Slavíček, Ph.D.
Mgr. et Mgr. Marek Vácha, Ph.D.

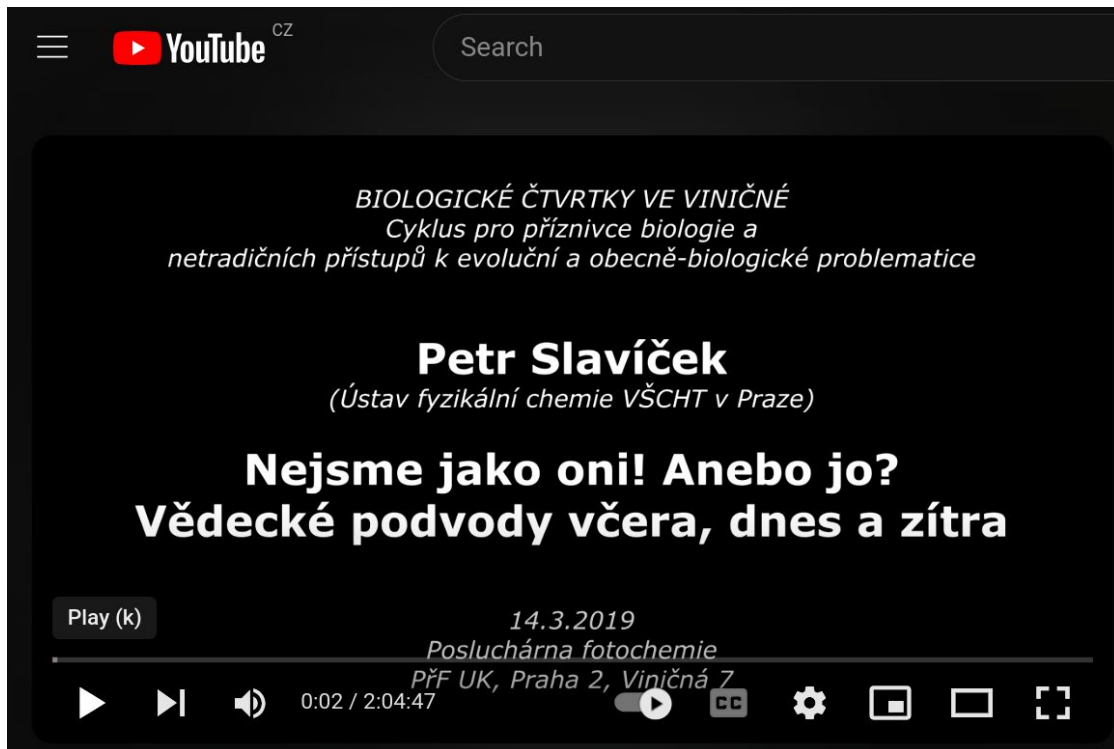
moderuje:
RNDr. Ivo Starý, CSc.

0:06 / 1:58:45

diskuse Učené společnosti České republiky

Etika

- <https://youtu.be/bkRVdGDaM3I?si=Vhm1EInN284HWCAM>



The image shows a screenshot of a YouTube video player. The video title is "BIOLOGICKÉ ČTVRTKY VE VINIČNÉ" with a subtitle "Cyklus pro příznivce biologie a netradičních přístupů k evoluční a obecně-biologické problematice". The speaker is identified as "Petr Slavíček" from the "Ústav fyzikální chemie VŠCHT v Praze". The video title is "Nejsme jako oni! Anebo jo? Vědecké podvody včera, dnes a zítra". The video was recorded on "14.3.2019" at "Posluchárna fotochemie, PŘF UK, Praha 2, Viničná 7". The video player interface includes a play button, a progress bar showing 0:02 / 2:04:47, and various control icons like volume, settings, and full screen.

YouTube CZ Search

BIOLOGICKÉ ČTVRTKY VE VINIČNÉ
Cyklus pro příznivce biologie a
netradičních přístupů k evoluční a obecně-biologické problematice

Petr Slavíček
(Ústav fyzikální chemie VŠCHT v Praze)

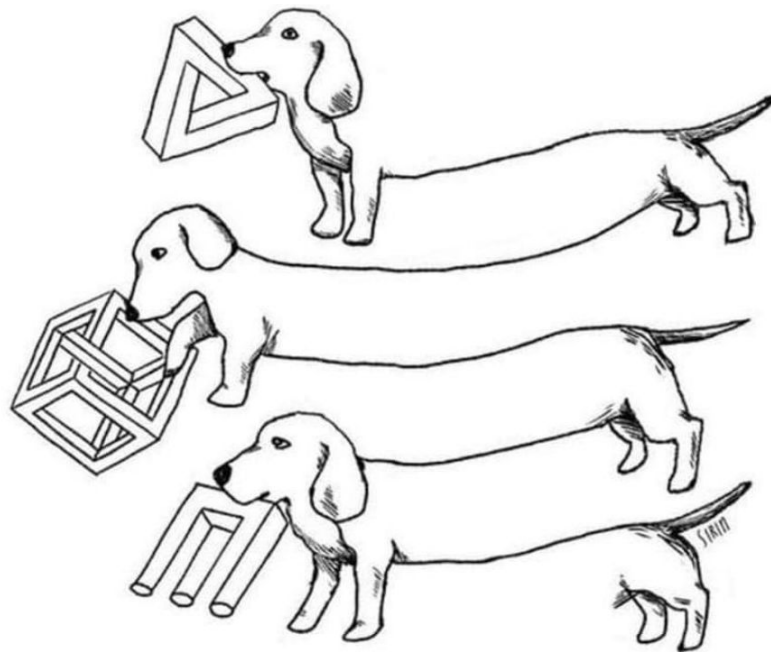
Nejsme jako oni! Anebo jo?
Vědecké podvody včera, dnes a zítra

Play (k) 14.3.2019
Posluchárna fotochemie
PŘF UK, Praha 2, Viničná 7

0:02 / 2:04:47

Ethics

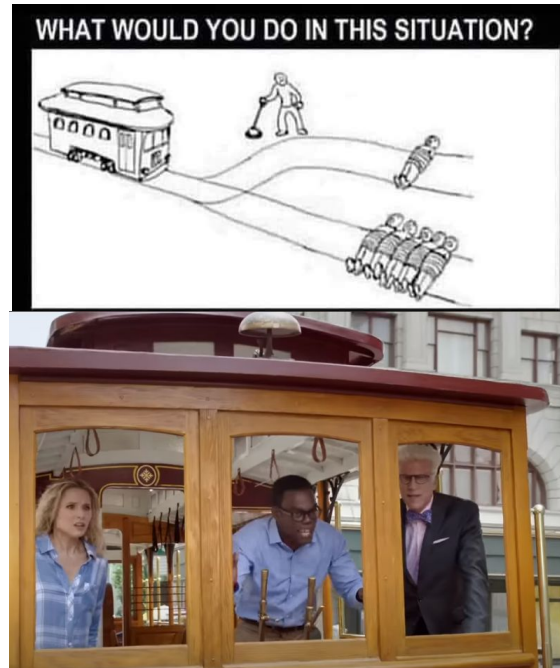
- různá řešení, výklady toho, co je etické, správné...



Ethics – Trolley Problem

- https://www.youtube.com/watch?v=DtRhrfhP5b4&ab_channel=ComedyBites
- různá řešení, výklady toho, co je etické, správné...

The Trolley Problem | The Good Place | Comedy Bites



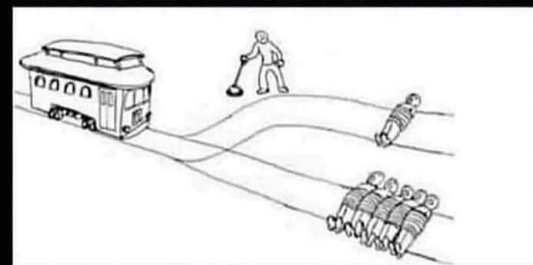
Ethics – Trolley Problem

- https://www.youtube.com/watch?v=DtRhrfhP5b4&ab_channel=ComedyBites
- různá řešení, výklady toho, co je etické, správné...

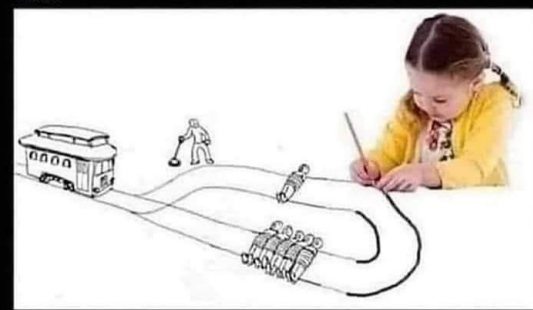
The Trolley Problem | The Good Place | Comedy Bites

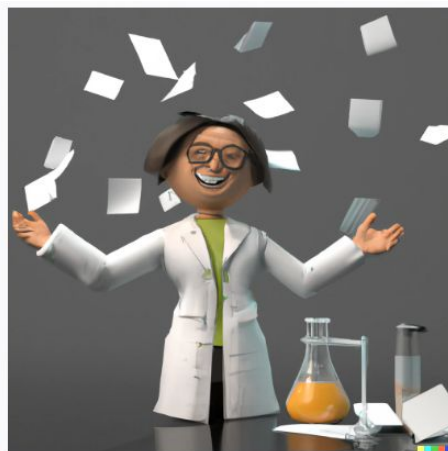
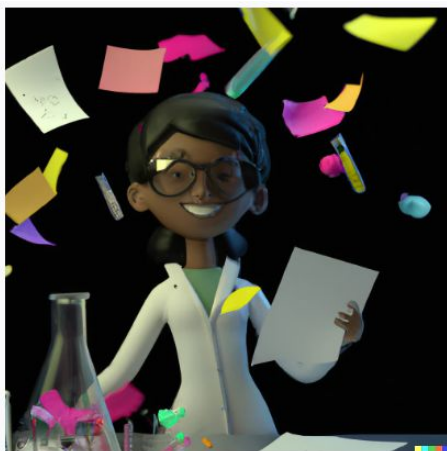
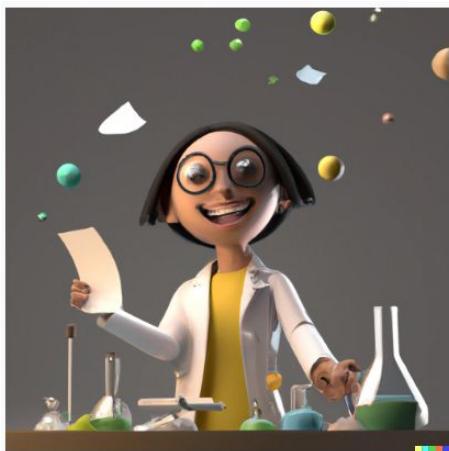
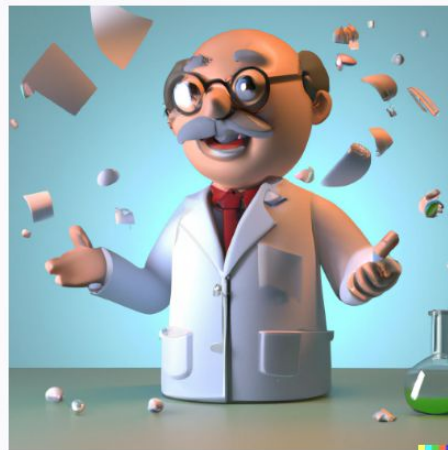
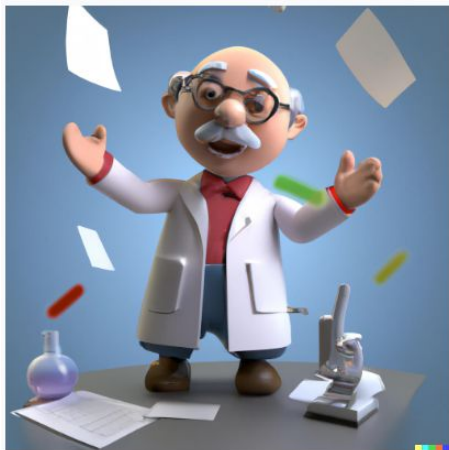


WHAT WOULD YOU DO IN THIS SITUATION?

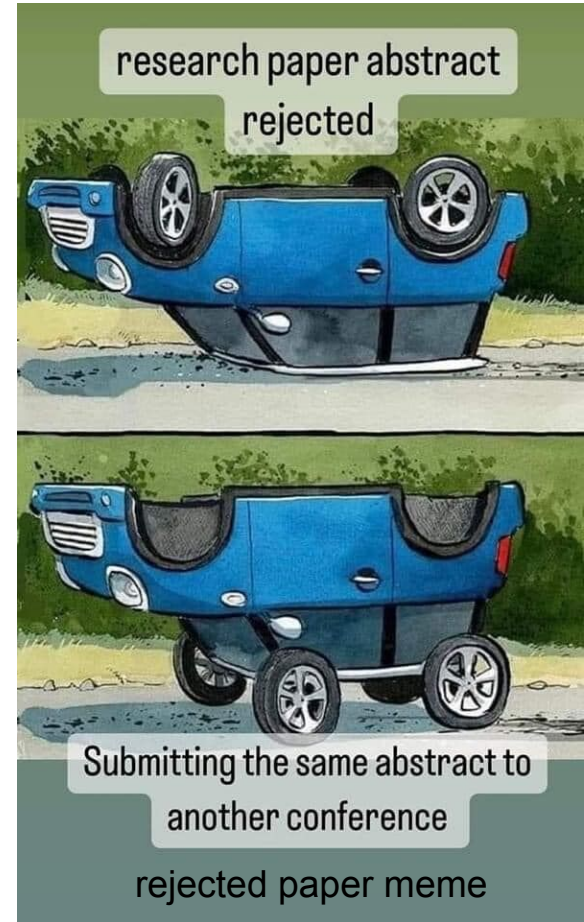


ME:



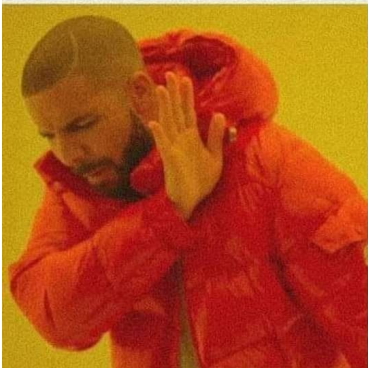


The End

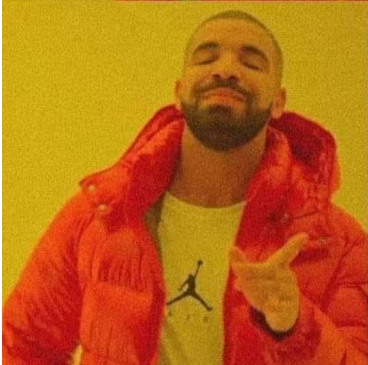


What makes us human?

What makes you human?



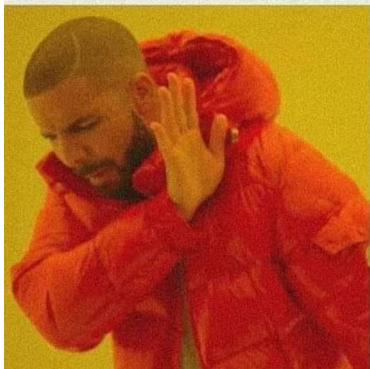
To love and care for
others



Selecting all images
with traffic lights

What makes us human?

What makes you human?



To love and care for others



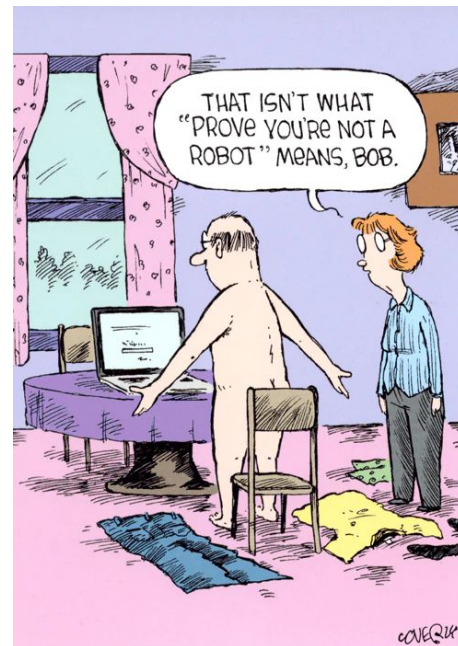
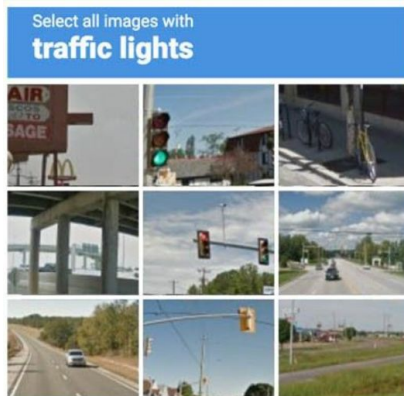
Selecting all images with traffic lights



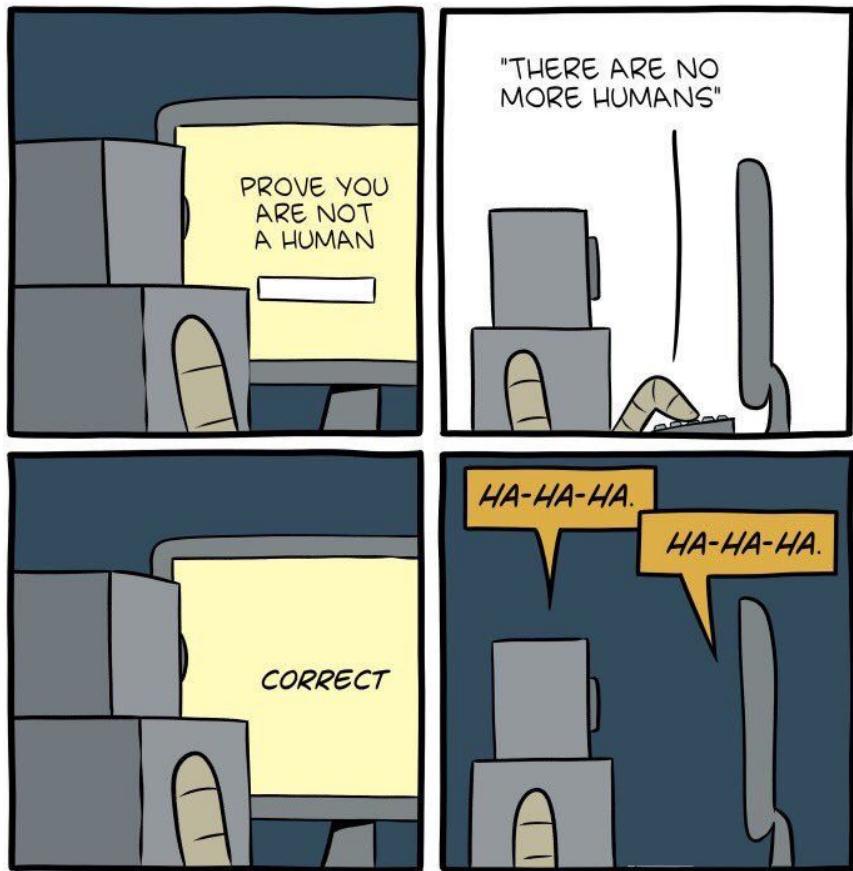
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Meanwhile after AI takes over...

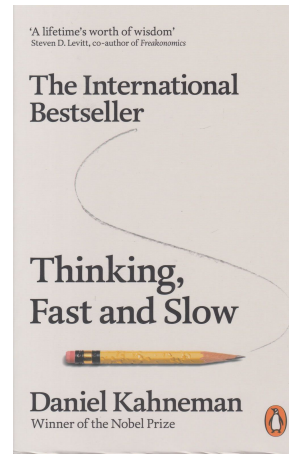


Statuty etických komisí

- Kdo může komisi podat podnět
 - členové komise sami sobě
 - děkan fakulty, předseda akademického senátu
 - na základě podnětu z akademické obce, veřejnosti
 - možnost i anonymního podnětu
 - ochrana whistleblowerů
 - EtK UP: pouze rektor
 - křehké
 - dáno statutem poradního orgánu rektora
- Role zpravodaje
- Dále pravidla stanovuje jednací řád
- Zahrnutí studentů v etických komisích zejména na univerzitách
 - ve všech projednávaných případech vs. pouze když se týkají studentů či jejich práv.

Availability Bias, Confirmation Bias, Repeated Exposure

- **Daniel Kahneman: Thinking Fast and Slow:**
- Availability
- Confirmation bias
- Conformity bias
- Familiarity, cognitive ease



Retrakce a politika

<https://www.newsweek.com/putin-vorontsova-science-publish-daughter-1824886>



Research ethics: a profile of retractions from world class universities

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Received: 20 November 2020 / Accepted: 1 April 2021 / Published online: 23 May 2021
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Abstract

This study aims to profile the scientific retractions published in journals indexed in the Web of Science database from 2010 to 2019, from researchers at the top 20 World Class Universities according to the Times Higher Education global ranking of 2020. Descriptive statistics, Pearson's correlation coefficient, and simple linear regression were used to analyze the data. Of the 330 analyzed retractions, Harvard University had the highest number of retractions and the main reason for retraction was data results. We conclude that the universities with a higher ranking tend to have a lower rate of retraction.

Introduction

Unethical research undermines confidence in researchers, universities, journals, and in science itself. In this sense, the peer review process, along with the responsible and transparent correction of articles, aims to guarantee the quality of knowledge available (Fang & Casadevall, 2011; Fennell, 2019; Lei & Zhang, 2018). However, even if research is submitted to peer review, this process may fail (Van Leeuwen & Luwel, 2014), and research with honest or dishonest errors does get published, as well as those with scientific dishonesty.

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