The Case for a Percentage-based Author-contribution System in Scientific Publishing

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What is the role of journal publications in researchers' evaluation?

Is the current system for acknowledging authors' contribution fair / meritocratic?

If **not,** how can we **improve** it in a way that would **promote RI?**

The current status

- Peer-reviewed journal publications play a key-role in most stages of career development in academia

- Three "axioms" for journal publications
  - the **more** in number, the **better**
  - the **higher** the journal impact, the **better**
  - the **higher** the citation count, the **better**

What has this lead to?

The current status

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publish or perish

quantity over quality

citation & collusion rings

What has this lead to?

The current status

What do the data show?

- Increase in number of publications (📖 NCSES, NSF, 2024)
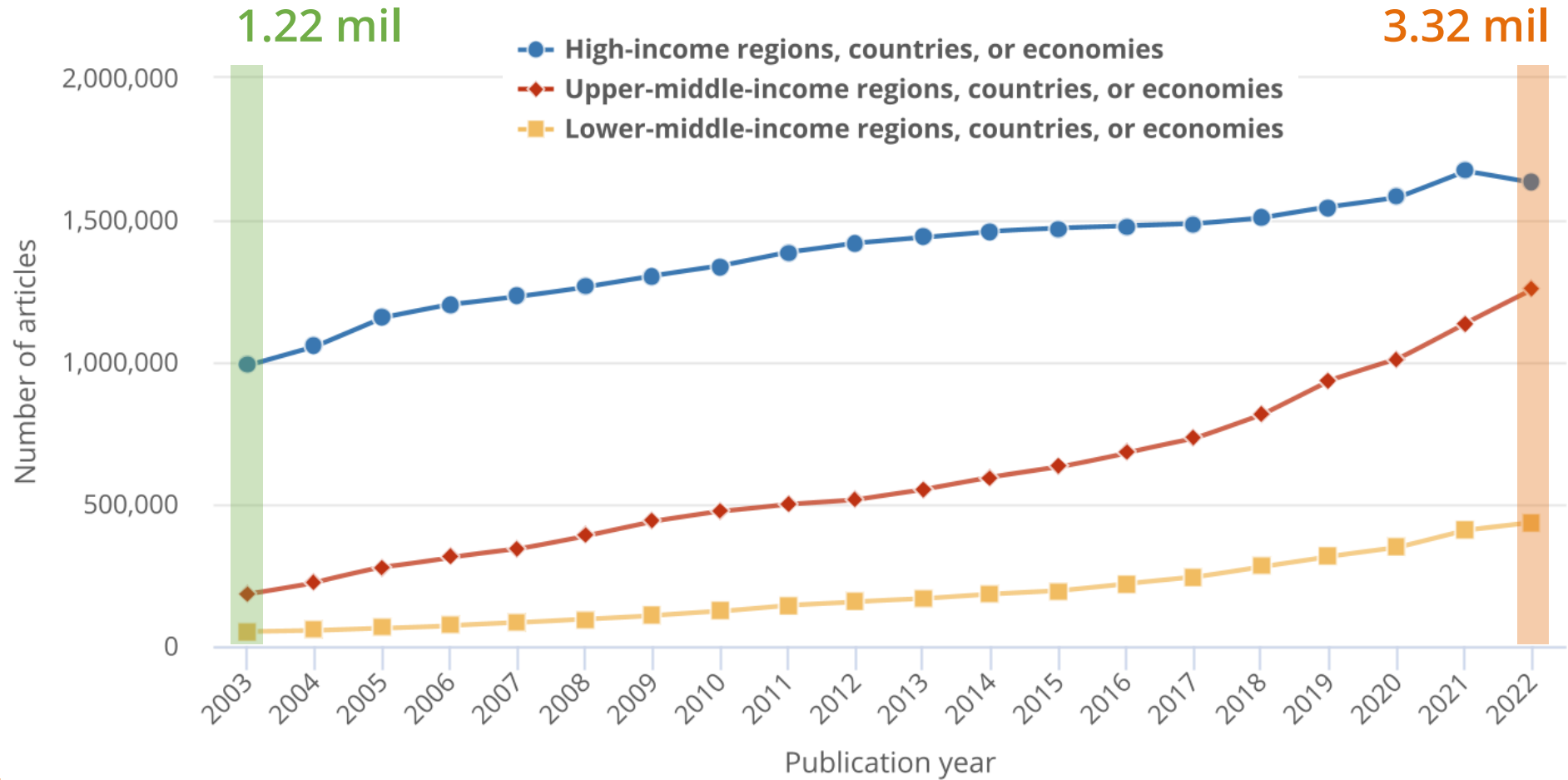
1.22 mil

3.32 mil

High-income regions, countries, or economies
Upper-middle-income regions, countries, or economies
Lower-middle-income regions, countries, or economies

Number of articles

2,000,000

1,500,000

1,000,000

500,000

0

2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022

Publication year

Past vs Present

The current status

What do the data show?

- Increase in number of authors per publication (📖 Thelwall and Maflahi, 2022) effects

Past   vs   Present

The current status

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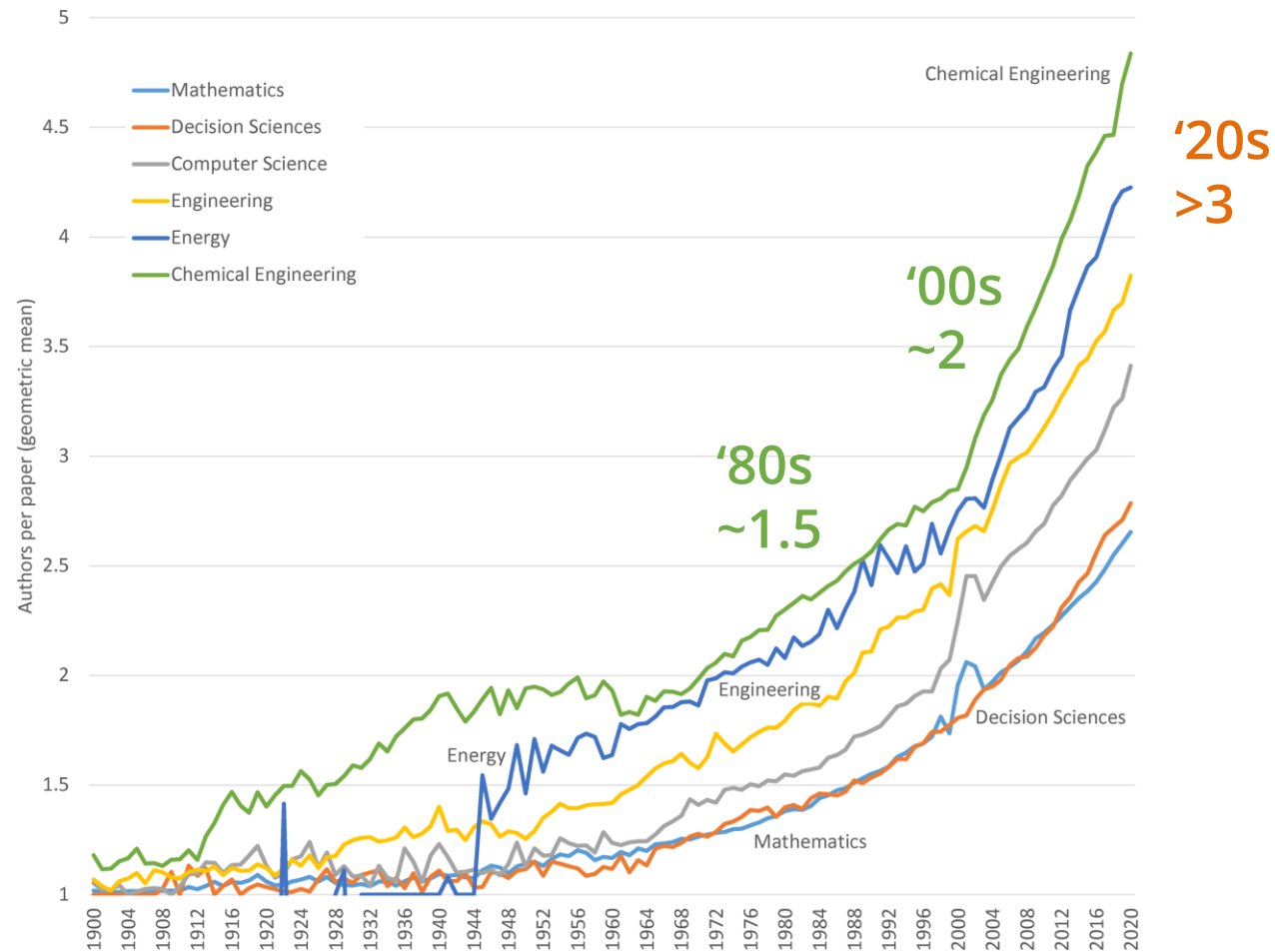
Past   vs   Present

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What do the data show?
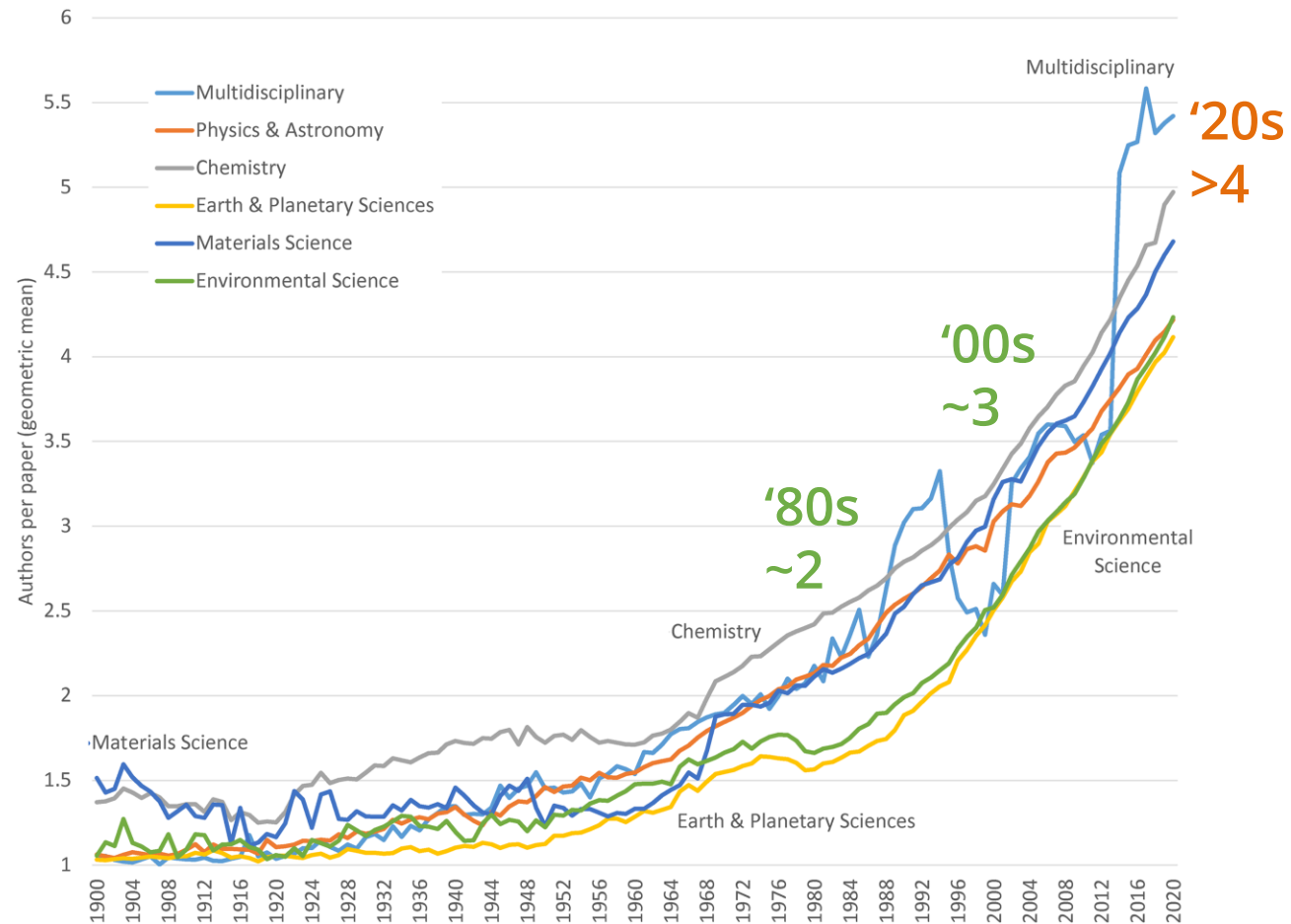
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Past vs **Present**

The current status
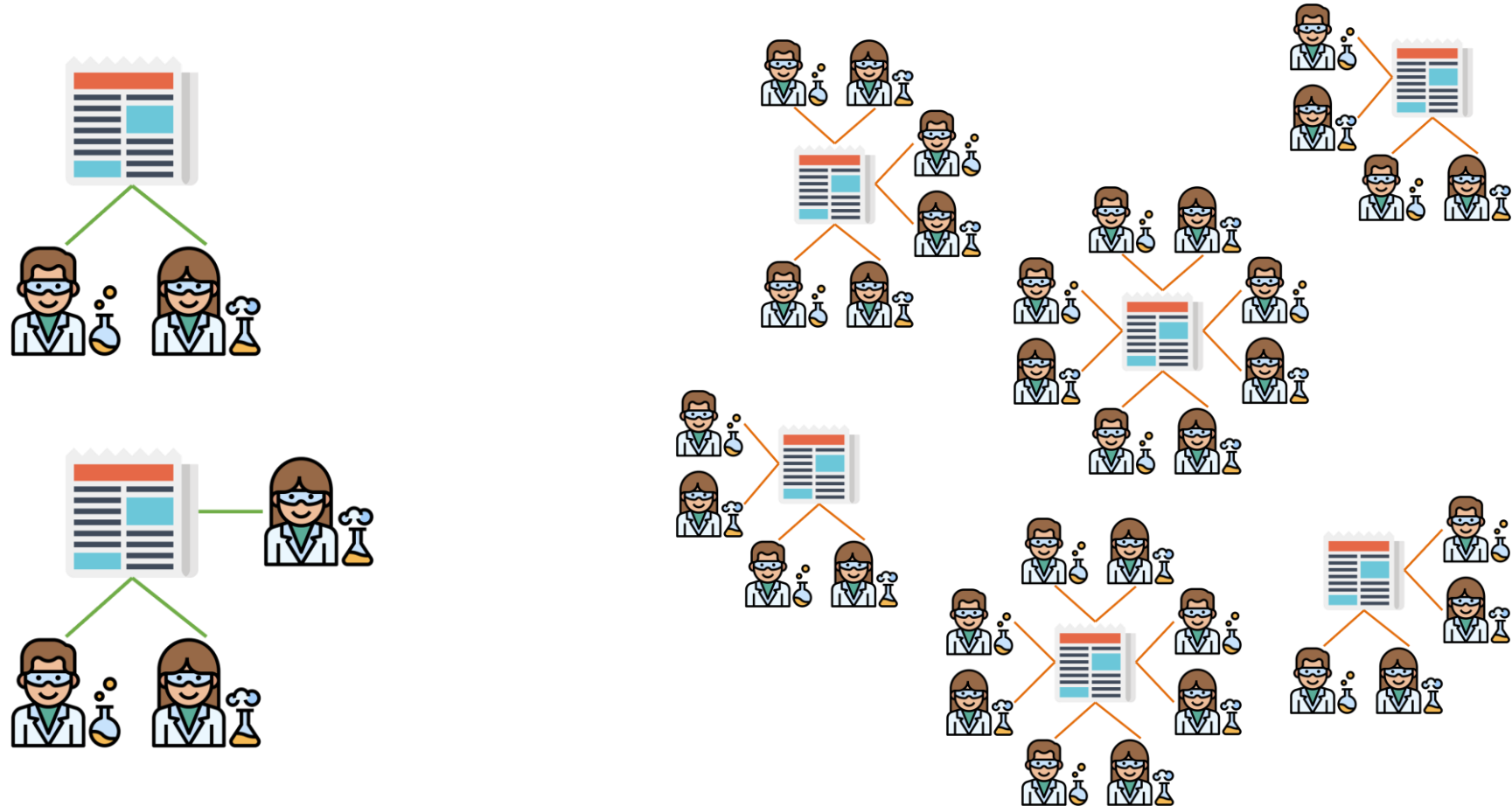
The case for a %-based author-contribution system

- **Currently**

  o single-authored paper

  o double-authored paper

  o multi-authored paper

Contribution to the field based on numbers/metrics

| Paper | Author |

| Paper | Author | Author |

| Paper | Author | Author | Author | Author |

An evaluation scenario...

The case for a %-based author-contribution system

- The proposal

Co-authors of a paper will have to declare

a percentage-based author-contribution list

totaling to 100%

This percentage will represent each author's contribution to their field through the specific paper and can be associated with whichever number/metric (journal impact, citation count, or other)

The case for a %-based author-contribution system

- **From this...**

  ○ single-authored paper

  ○ double-authored paper

  ○ multi-authored paper

Contribution to the field based on numbers/metrics

Paper	Author
100%	100%

Paper	Author	Author
100%	100%	100%

Paper	Author	Author	Author	Author
100%	100%	100%	100%	100%
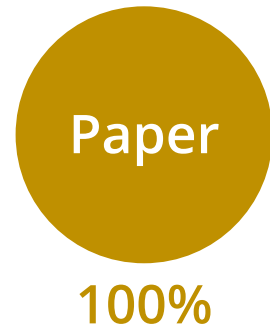
The case for a %-based author-contribution system

- **To this!**

  - single-authored paper

  - double-authored paper

  - multi-authored paper

Contribution to the field based on numbers/metrics

| Paper | Author |
| 100% | 100% |

| Paper | Author | Author |
| 100% | 60% | 40% |

| Paper | Author | Author | Author | Author |
| 100% | 50% | 30% | 10% | 10% |
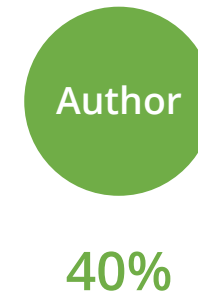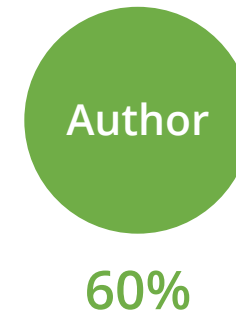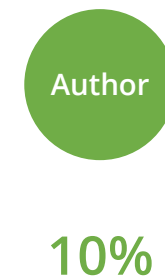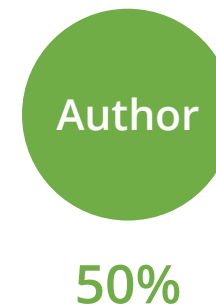
The case for a %-based author-contribution system

- ## Example 1

  Contribution impact based on Citation Count & H-index

How would this change things?

Paper No.	Author Contrib. % [1]	Citation Count (papers) [2]	Citation Count (author) [3] = [1]* [2]
1	100%	5	5
2	50%	4	2
3	50%	4	2
4	25%	4	1
5	10%	10	1
Sums		27	11
H-index		4	2

The case for a %-based author-contribution system

- Example 2

Contribution impact based on Journal Impact

How would this change things?

Paper No.	Author Contrib. % [1]	Citation Count (papers) [2]	Citation Count (author) [3] = [1]* [2]	Journal Impact Metric [4]	Contrib. to the field (papers) [5] = [4]	Contrib. to the field (author) [6] = [1]*[4]
1	100%	5	5	3	3	3.0
2	50%	4	2	2	2	1.0
3	50%	4	2	2	2	1.0
4	25%	4	1	2	2	0.5
5	10%	10	1	4	4	0.4
Sums		27	11		13	5.9
H-index		4	2			

The case for a %-based author-contribution system

- ## Example 3

  *Contribution impact based on Journal Impact * Citation Count*

How would this change things?

Paper No.	Author Contrib. % [1]	Citation Count (papers) [2]	Citation Count (author) [3] = [1]* [2]	Journal Impact Metric [4]	Contrib. to the field (papers) [5] = [2]*[4]	Contrib. to the field (author) [6] = [3]*[4]
1	100%	5	5	3	15	15
2	50%	4	2	2	8	4
3	50%	4	2	2	8	4
4	25%	4	1	2	8	2
5	10%	10	1	4	40	4
Sums		27	11		79	29
H-index		4	2			

The case for a %-based author-contribution system

New System Pros

Rational & Fair

Promotes RI & Hurts bad practices

Easy to implement

- easily expanded to all metrics
- seamlessly integrated to all scientific databases

Intact paper's contribution to the field

- authors' profiles with both papers' & authors' contributions

...But we should always strive to **improve** the current one

A perfect system might never exist...

Thank you for your attention!

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