



# Publication ethics module: Co-authorship and contributorship in research, university-business collaboration, and in citizen science

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**BRIDGE: Bridging Integrity in Higher Education, Business, and Society**



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ROBERT MERTON'S  
NORMS OF  
GOOD SCIENTIFIC  
RESEARCH (1942)

C – communalism

U – universalism

D – disinterestedness

OS – organized skepticism

# Why is the dissemination of research important?

- Contribute to the field and facilitate further research based on one's results
- Research is often publicly funded; hence its results should be available to the public

Basic  
assumptions  
about  
authorship

- Authorship conveys credit
- Authorship implies responsibility
- Authorship order reflects one's contribution

PRL 114, 191803 (2015)

 Selected for a Viewpoint in *Physics*  
PHYSICAL REVIEW LETTERSweek ending  
15 MAY 2015

## Combined Measurement of the Higgs Boson Mass in $pp$ Collisions at $\sqrt{s} = 7$ and 8 TeV with the ATLAS and CMS Experiments

G. Aad *et al.*\*(ATLAS Collaboration)<sup>†</sup>(CMS Collaboration)<sup>‡</sup>


(Received 25 March 2015; published 14 May 2015)

A measurement of the Higgs boson mass is presented based on the combined data samples of the ATLAS and CMS experiments at the CERN LHC in the  $H \rightarrow \gamma\gamma$  and  $H \rightarrow ZZ \rightarrow 4\ell$  decay channels. The results are obtained from a simultaneous fit to the reconstructed invariant mass peaks in the two channels and for the two experiments. The measured masses from the individual channels and the two experiments are found to be consistent among themselves. The combined measured mass of the Higgs boson is  $m_H = 125.09 \pm 0.21$  (stat)  $\pm 0.11$  (syst) GeV.

DOI: 10.1103/PhysRevLett.114.191803

PACS numbers: 14.80.Bn, 13.85.Qk

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**The paper is on 9 pages,  
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**Combined Measurement of the Higgs Boson Mass in  $pp$  Collisions at  $\sqrt{s} = 7$  and 8 TeV  
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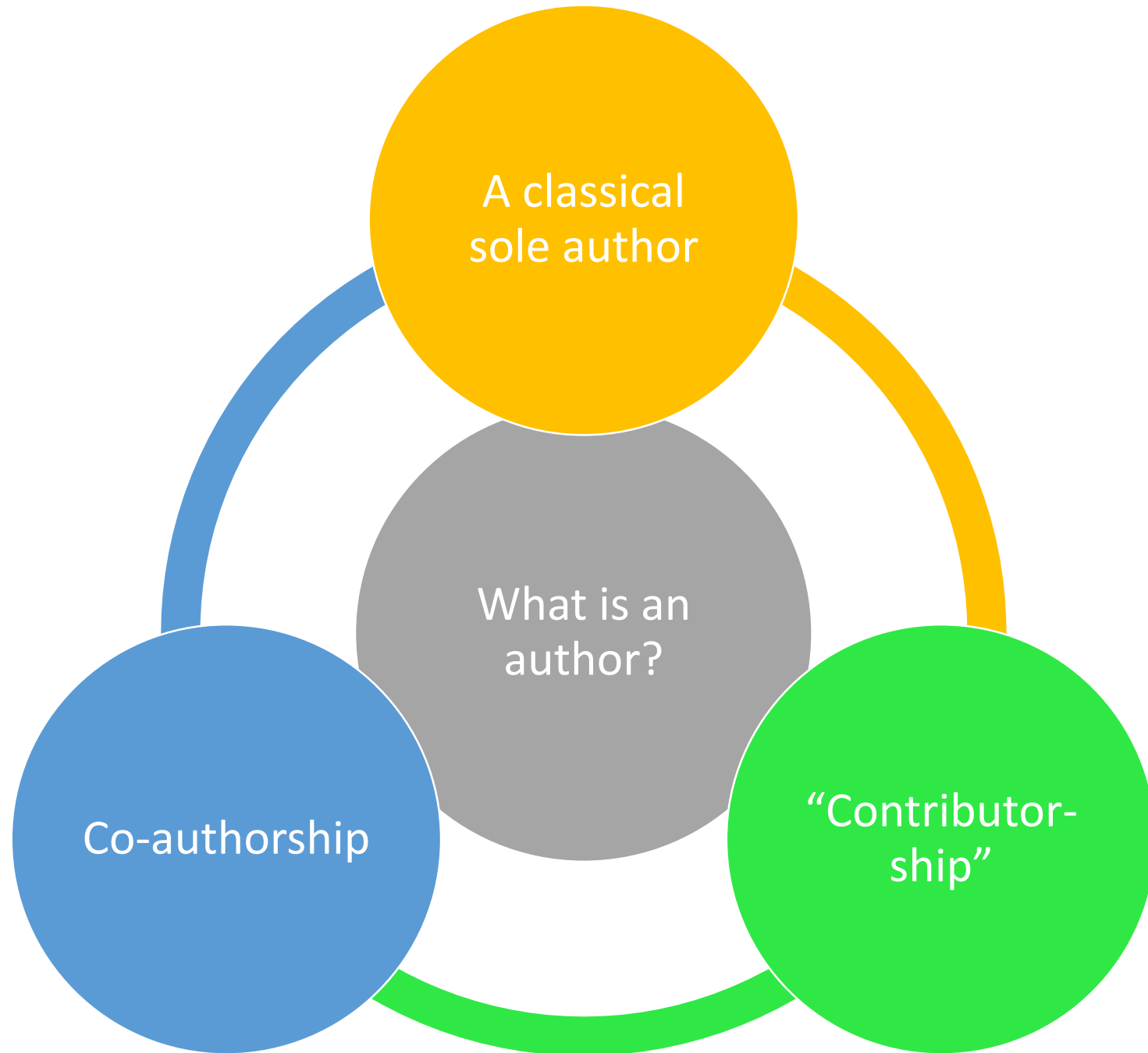
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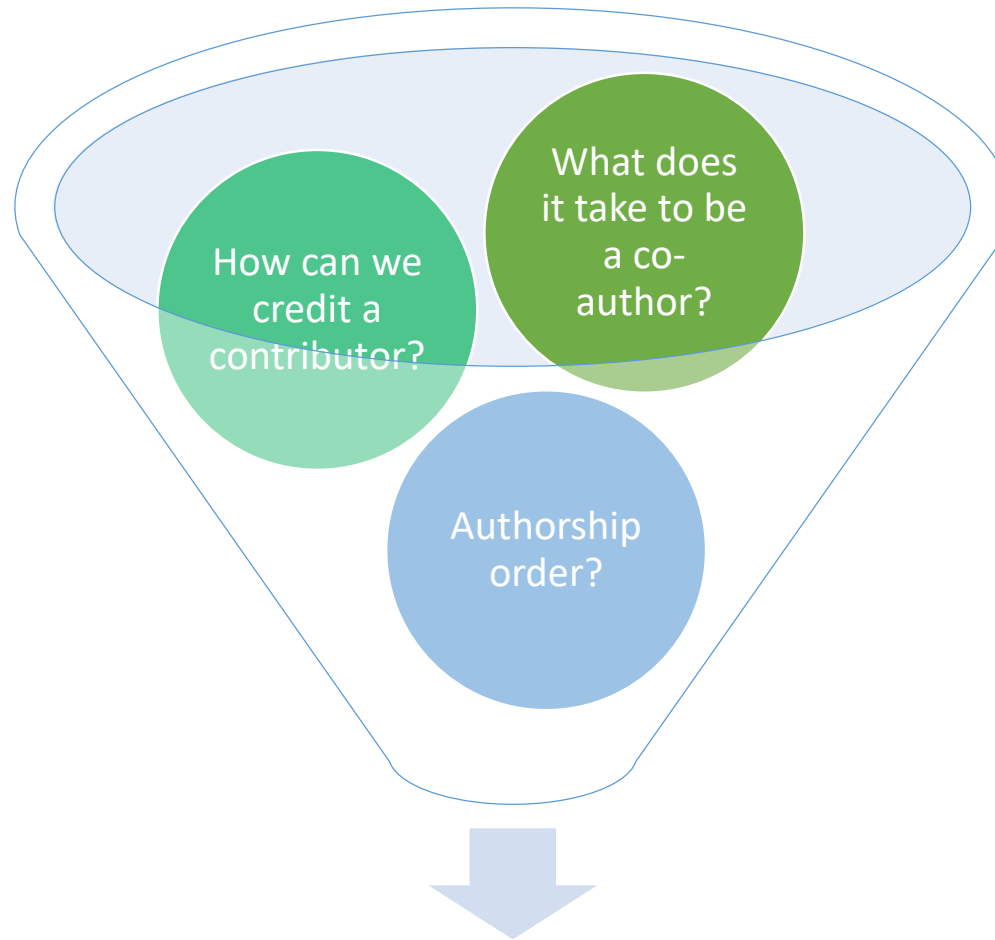
(ATLAS Collaboration)<sup>†</sup>

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**5154 co-authors**







**Authorship issues**

# Vancouver rules

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1. Substantial contributions to the conception or design of the work; or the acquisition, analysis, or interpretation of data for the work; **AND**

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2. Drafting the work or revising it critically for important intellectual content; **AND**

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3. Final approval of the version to be published; **AND**

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4. 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.

All authors should meet all four criteria and everyone meeting all criteria should be included as author.

To lead a research group is not enough for co-authorship!

Supervision: different traditions in different fields!

# Contributorship

## Contributorship statement

- Providing details of who did what in planning, conducting, and reporting the work, commonly stated in the end of a research paper.
- Includes those contributing as authors as well as other contributors!

## CRedit

#	Role	Definition
1	Conceptualization	Ideas; formulation or evolution of overarching research goals and aims.
2	Data curation	Management activities to annotate (produce metadata), scrub data and maintain research data (including software code, where it is necessary for interpreting the data itself) for initial use and later re-use.
3	Formal analysis	Application of statistical, mathematical, computational, or other formal techniques to analyze or synthesize study data.
4	Funding acquisition	Acquisition of the financial support for the project leading to this publication.
5	Investigation	Conducting a research and investigation process, specifically performing the experiments, or data/evidence collection.
6	Methodology	Development or design of methodology; creation of models.
7	Project administration	Management and coordination responsibility for the research activity planning and execution.
8	Resources	Provision of study materials, reagents, materials, patients, laboratory samples, animals, instrumentation, computing resources, or other analysis tools.
9	Software	Programming, software development; designing computer programs; implementation of the computer code and supporting algorithms; testing of existing code components.
10	Supervision	Oversight and leadership responsibility for the research activity planning and execution, including mentorship external to the core team.
11	Validation	Verification, whether as a part of the activity or separate, of the overall replication/reproducibility of results/experiments and other research outputs.
12	Visualization	Preparation, creation and/or presentation of the published work, specifically visualization/data presentation.
13	Writing – original draft	Preparation, creation and/or presentation of the published work, specifically writing the initial draft (including substantive translation).
14	Writing – review & editing	Preparation, creation and/or presentation of the published work by those from the original research group, specifically critical review, commentary or revision – including pre- or post-publication stages.

# CRedit

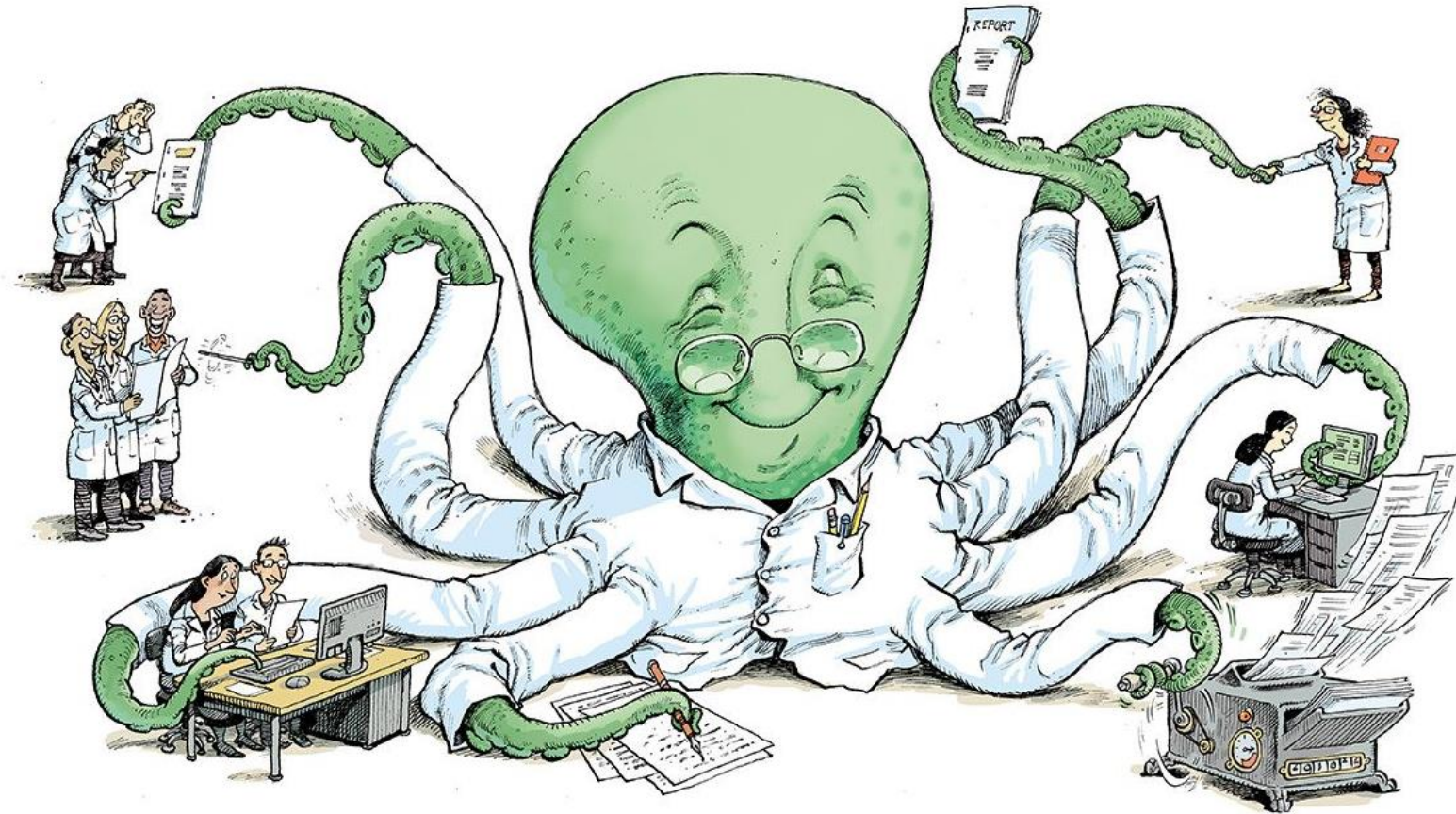
Publish or perish

Bibliometric data steer the funding:

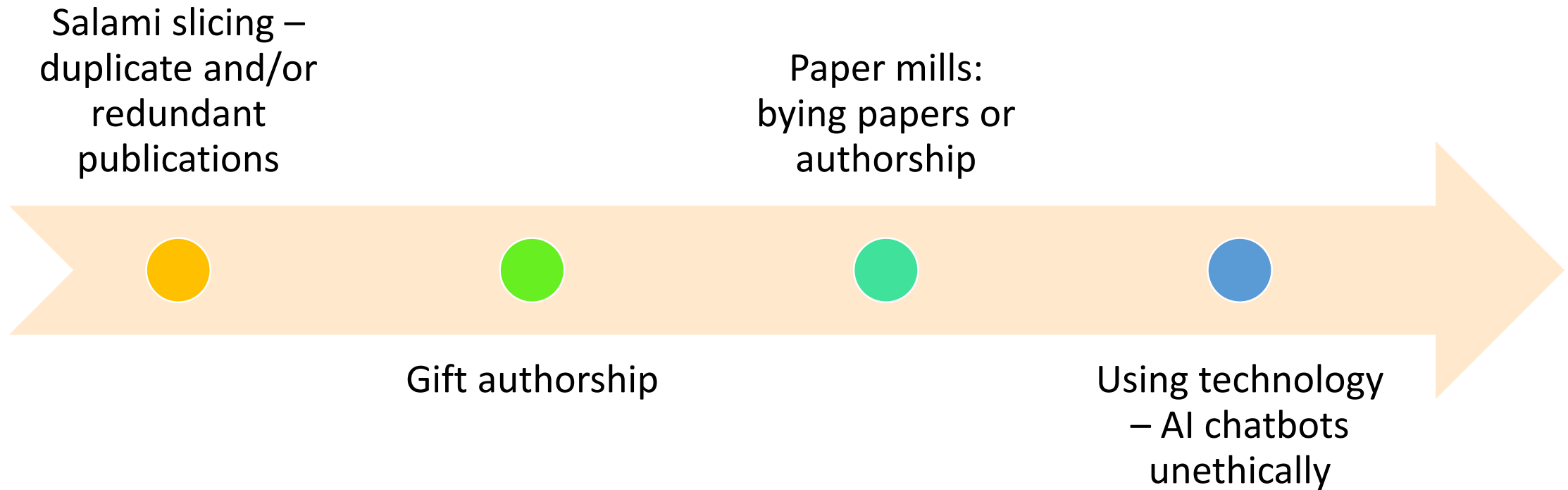
- Pressure for an individual researcher
- Pressure for a department

# John P. A. Ioannidis, Richard Klavans & Kevin W. Boyack (2018): “Thousands of scientists publish a paper every five days”

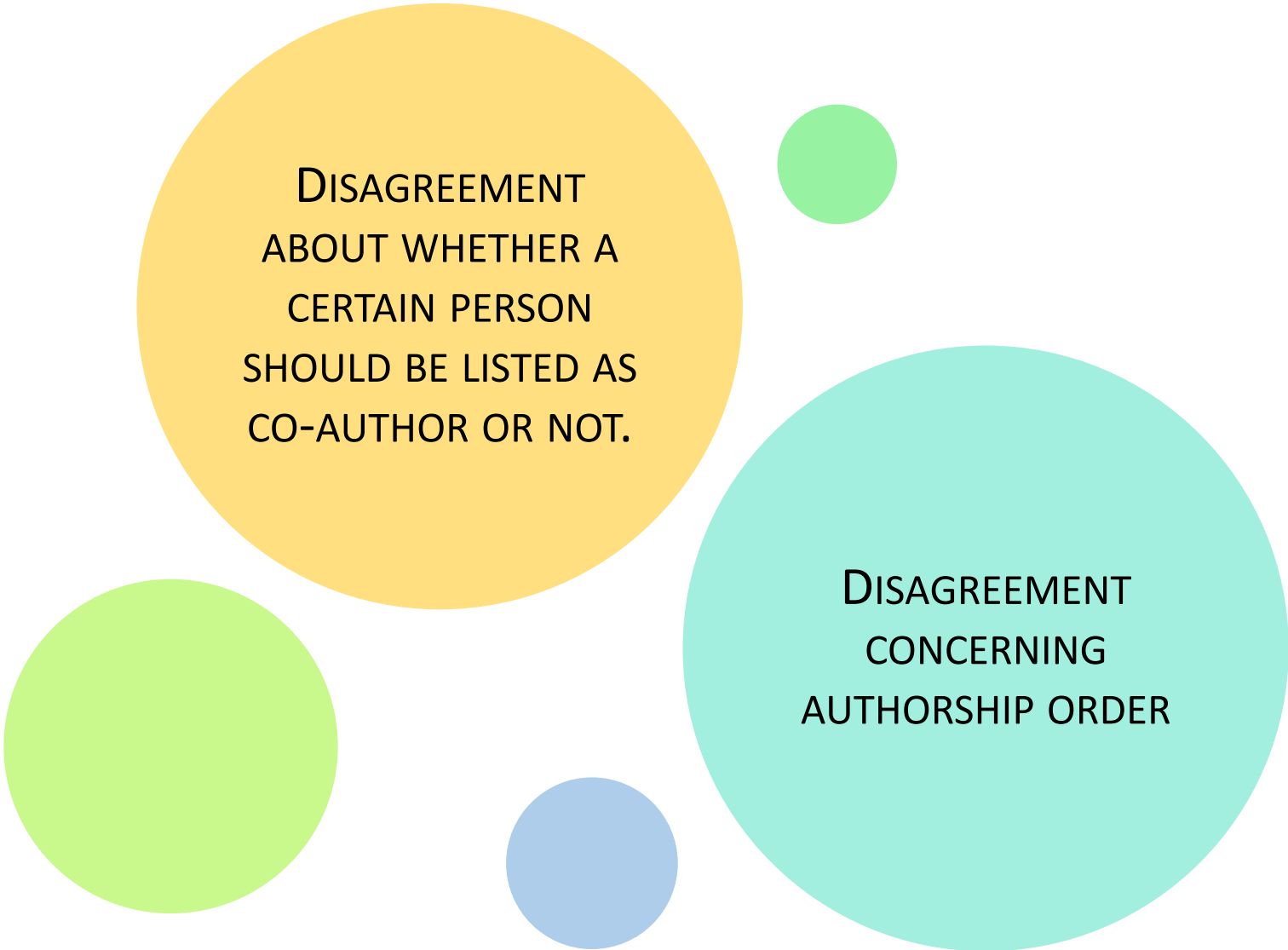
<https://www.nature.com/articles/d41586-018-06185-8?code=c6004b62-a952-4148-9f89-f73d157f8939>



# Cutting corners







DISAGREEMENT  
ABOUT WHETHER A  
CERTAIN PERSON  
SHOULD BE LISTED AS  
CO-AUTHOR OR NOT.

DISAGREEMENT  
CONCERNING  
AUTHORSHIP ORDER

# Types of authorship disputes

# Reasons for authorship disputes

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The researchers involved might have different views about whether a certain contribution is substantial enough to qualify for authorship.

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Lack of communication and dialogue within the team about the roles, duties and expectations of those involved.

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Previous unsolved disputes within the team.

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Unhealthy power structures

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Different views about the relative value of different types of contribution

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Lack of education

# Strategies for preventing authorship disputes

- Decide in advance who will take a leading role.
- Clearly define in advance the various roles, responsibilities, and expectations of those involved.
- Have an open discussion about the value of different types of contributions that can be made to a paper.
- Be prepared to revise one's opinion if changes are made during the course of the work.
- Respect each other
- Education



## Training objectives

- After completing this module, you will:
  - Be able to recognize the appropriate grounds for giving academic credit to those involved in research.
  - Be able to provide solutions for how to solve disputes concerning co-authorship, acknowledgement in co-research.
  - Be able to recognize the importance of defining the various roles of those involved in research collaboration in advance in order to avoid potential disputes and disagreements.
  - Being able to understand the challenges associated with citizen science and university-business collaborations when it comes to academic credit and how to publish one's results.

## Content

- short pre-recorded lectures
- quizzes
- suggestions for further reading
- a role-playing game on the publication ethics in research-business collaboration
- two vignettes on citizen science ethics

## Duration

- 1h without role-play and vignette
- 2h if the role-play and vignette are included





# PROJECT OUTPUTS

Co-funded by the  
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**Bridging Integrity in  
Higher Education,  
Business and  
Society**



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