



Together, We Create!

The values & challenges of the Contributor Role Taxonomy (CRediT)



Values & challenges of CRediT

1. Bit about the origins and demand for CRediT
2. Adoption and implementation
3. Insights into ‘how research works’ (‘research on research’)
4. Thoughts & where next?



Origins and 'demand' for CRediT

1. Authorship is an outdated and static concept

Does authorship reflect contribution?

THE AUTHOR LIST: GIVING CREDIT WHERE CREDIT IS DUE

The first author

Senior grad student on the project. Made the figures.

The third author

First year student who actually did the experiments, performed the analysis and wrote the whole paper. Thinks being third author is "fair".

The second-to-last author

Ambitious assistant professor or post-doc who instigated the paper.

Michaels, C., Lee, E. F., Sap, P. S., Nichols, S. T., Oliveira, L., Smith, B. S.

The second author

Grad student in the lab that has nothing to do with this project, but was included because he/she hung around the group meetings (usually for the food).

The middle authors

Author names nobody really reads. Reserved for undergrads and technical staff.

The last author

The head honcho. Hasn't even read the paper but, hey, he got the funding, and his famous name will get the paper accepted.

Origins and 'demand' for CRediT

1. Authorship is an outdated and static concept
2. **Need for transparency and accountability in scholarly publishing**

Home / Authorship and contributorship / Authorship

Ghost authorship

News

19 June 2019

Case Summary

DOI: <https://doi.org/10.24318/cope.2019.2.22>

How to recognise potential authorship problems.

Clear policies (that allow for transparency around who contributed to the work and in what capacity) should be in place for requirements for authorship and contributorship as well as processes for managing potential disputes.

The gift of paper authorship

Researchers seek clearer rules on crediting co-authors.

31 July 2020

Dalmeet Singh Chawla




BMJ

BMJ 2011;343:d6128 doi: 10.1136/bmj.d6128

Page 1 of 7

RESEARCH

Honorary and ghost authorship in high impact biomedical journals: a cross sectional survey

 OPEN ACCESS

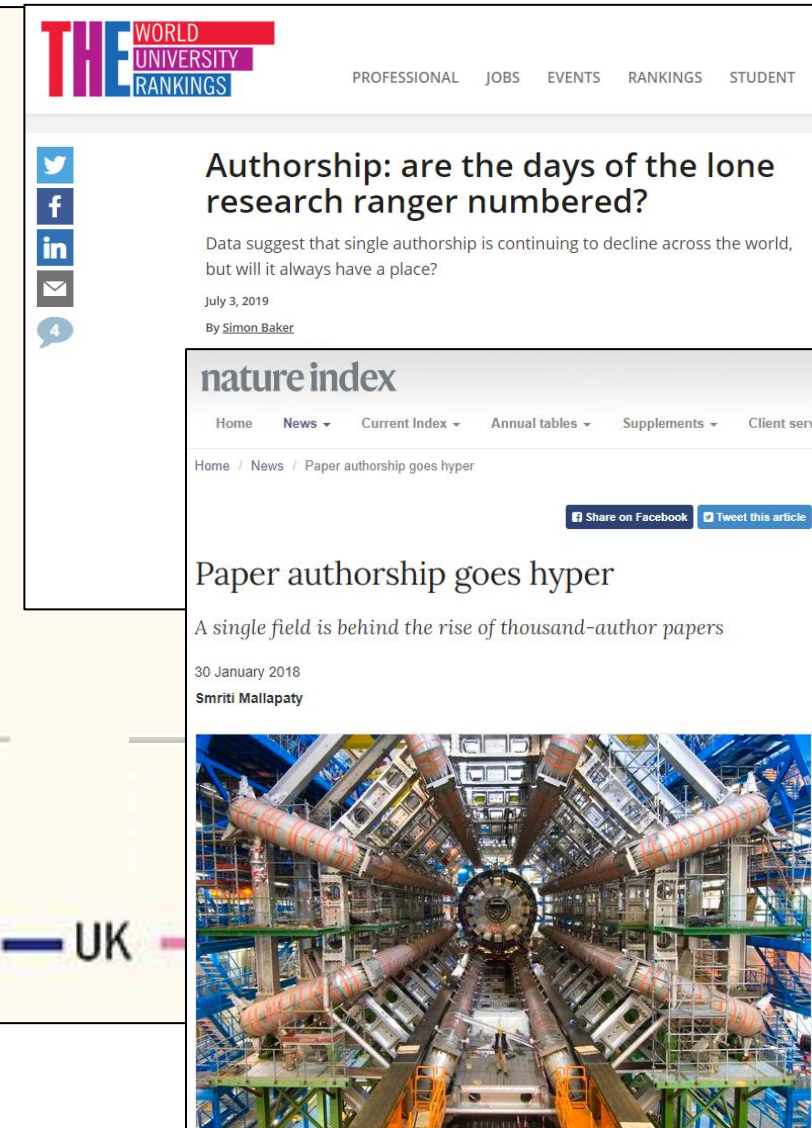
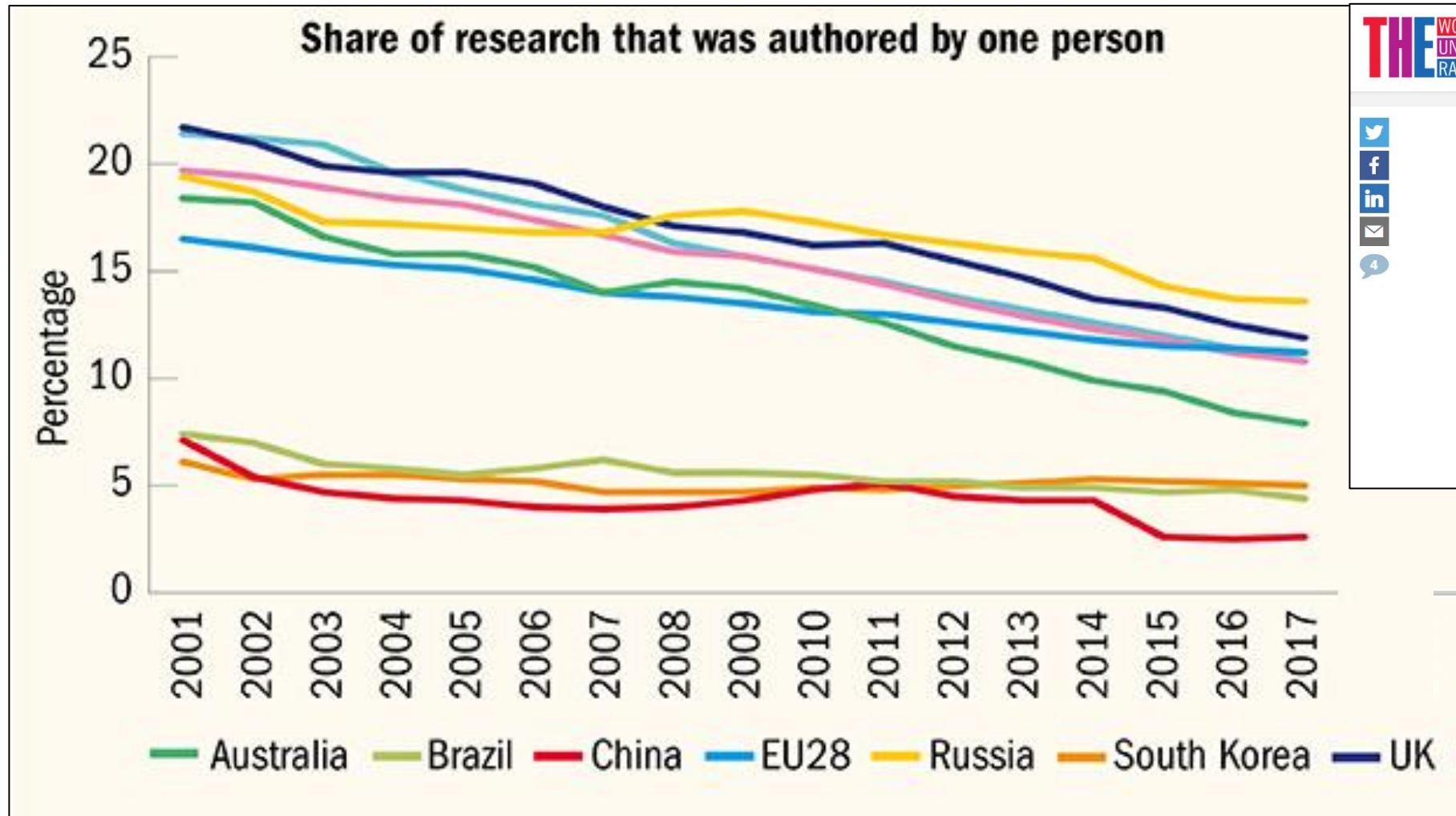
Joseph S Wislar survey research specialist, JAMA, Annette Flanagin managing deputy editor, JAMA, Phil B Fontanarosa executive editor, JAMA, Catherine D DeAngelis editor emerita, JAMA

American Medical Association, 515 N State Street, Chicago, Illinois 60654, USA

Origins and 'demand' for CRediT

1. Authorship is an outdated and static concept
2. Need for transparency and accountability in scholarly publishing
3. **Upward trend in collaborative, 'Team' science (in most disciplines)**

Shrinking share of solo-authored papers



Source: <https://www.timeshighereducation.com/news/authorship-are-days-lone-research-ranger-numbered>

Extreme Team Science!

nature International weekly journal of science

Home | News & Comment | Research | Careers & Jobs | Current Issue | Archive | Audio & Video | For Authors

News & Comment | News | 2019 | May | Article

NATURE | NEWS


Physics paper sets record with more than 5,000 authors

Detector teams at the Large Hadron Collider collaborated for a more precise estimate of the size of the Higgs boson.

Davide Castelvecchi

15 May 2015

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CERN

IOPscience Journals ▾

Journal of Instrumentation

2,926 authors from 169 research institutions!

Journal of Instrumentation > Volume 3 > August 2008

The ATLAS Collaboration *et al* 2008 *JINST* **3** S08003 doi:10.1088/1748-0221/3/08/S08003

The ATLAS Experiment at the CERN Large Hadron Collider

OPEN ACCESS | THE CERN LARGE HADRON COLLIDER: ACCELERATOR AND EXPERIMENTS

The ATLAS Collaboration, G Aad⁸¹, E Abat¹⁸, J Abdallah¹⁶², A A Abdelalim⁴⁶, A Abdesselam¹¹⁶, O Abidinov¹⁰, B A Abi¹¹¹, M Abolins⁸⁶, H Abramowicz¹⁵⁰, E Acerbi⁸⁷, B S Acharya¹⁵⁹, R Achenbach⁵⁵, M Ackers²⁰, D L Adams²³, F Adamyan¹⁶⁹, T N Addy⁵³, M Aderholz⁹⁸, C Adorisio³⁵, P Adragna⁷², M Aharrouche⁷⁸, S P Ahlen²¹, F Ahles⁴⁵, A Ahmad¹⁴⁶, H Ahmed², G Aielli¹³³, P F Åkesson²⁸, T P A Åkesson⁷⁶, A V Akimov⁹³, S M Alam¹, J Albert¹⁶⁴, S Albrand⁵², M Aleksa²⁸, I N Aleksandrov⁸², M Aleppo⁸⁷, F Alessandria⁸⁷, C Alexa²⁴, G Alexander¹⁵⁰, T Alexopoulos⁹, G Alimonti⁸⁷, M Aliyev¹⁰, P P Allport⁷⁰, S E Allwood-Spiers⁵⁰, A Aloisio¹⁰¹, J Alonso¹⁴, R Alves¹²², M G Alvigi¹⁰¹, K Amako⁶³, P Amaral²⁸, S P Amaral²⁸, G Ambrosini¹⁶, G Ambrosio⁸⁷, C Amelung²⁸, V V Ammosov¹²⁶, A Amorim¹²², N Amram¹⁵⁰, C Anastopoulos¹⁵¹, B Anderson⁷⁴, K J Anderson²⁹, E C Anderssen¹⁴, A Andreatza⁸⁷, V Andrei⁵⁵, L Andricek⁹⁸, M-L Andrieux⁵², X S Anduaga⁶⁷, F Anghinolfi²⁸, A Antonaki⁸, M Antonelli⁴⁴, S Antonelli¹⁹, R Apsimon¹²⁷, G Arabidze⁸, I Aracena¹⁴², Y Arai⁶³, A T H Arce¹⁴, J P Archambault²⁷, J-F Arguin¹⁴, E Arik¹⁸, M Arik¹⁸, K E Arms¹⁰⁸, S R Armstrong²³, M Arnaud¹³⁵, C Arnault¹¹³, A Artamonov⁹⁴, S Asai¹⁵², S Ask⁷⁹, B Asman¹⁴⁴, D Asner²⁷, L Asquith⁷⁴, K Assamagan²³, A Astbury¹⁶⁴, B Athar¹, T Atkinson⁸⁴, B Aubert⁴, B Auerbach¹⁶⁸, E Auge¹¹³, K Augsten¹²⁵, V M Aulchenko¹⁰⁶, N Austin⁷⁰, G Avolio²⁸, R Avramidou⁹, A Axen¹⁶³, C Ay⁵¹, G Azuelos⁹¹, G Baccaglioni⁸⁷, C Bacci¹³⁴, H Bachacou¹³⁵, K Bachas¹⁵¹, G Bachy²⁸, E Badescu²⁴, P Bagnaia¹³², D C Bailey¹⁵⁴, J T Baines¹²⁷, O K Baker¹⁶⁸, F Ballester¹⁶², F Baltasar Dos Santos Pedrosa²⁸, E Banas³⁷, D Banfi⁸⁷, A Bangert⁹⁸, V Bansal¹²¹, S P Baranov⁹³, S Baranov⁵, A Barashkou⁶², E L Barberio⁸⁴, D Barberis⁴⁷, G Barbier⁴⁶, P Barclay¹²⁷, D Y Bardin⁶², P Bargassa¹¹⁶, T Barillari⁹⁸, M Barisonzi³⁹, B M Barnett¹²⁷, R M Barnett¹⁴, S Baron²⁸, A Baroncelli¹³⁴, M Barone⁴⁴, A J Barr¹¹⁶, F Barreiro⁷⁷, J Barreiro Guimarães da Costa⁵⁴, P Barrillon¹¹³, A Barriuso Poy²⁸, N Barros¹²², V Bartheld⁹⁸, H Bartko⁹⁸, R Bartoldus¹⁴², S Basiladze⁹⁶, J Bastos¹²², L E Batchelor¹²⁷, R L Bates⁵⁰, J R Batley²⁶, S Batraneanu²⁸, M Battistin²⁸, G Battistoni⁸⁷, V Batusov⁶², F Bauer¹³⁵, B Bauss⁷⁸, D E Baynham¹²⁷, M Bazalova¹²³, A Bazan⁴, P H Beauchemin⁹¹, B Beaugiraud⁴, R B Beccherle⁴⁷, G A Beck⁷², H P Beck¹⁶, K H Becks¹⁶⁷, I Bedajane¹²⁵, A J Beddall¹⁸, A Beddall¹⁸, P Bednár¹⁴³, V A Bednyakov⁶², C Bee⁸¹, S Behar Harpaz¹⁴⁹, G A N Belanger²⁷, C Belanger-Champagne¹⁶⁰, B Belhorma⁵², P J Bell⁷⁹, W H Bell⁵⁰, G Bella¹⁵⁰, F Bellachia⁴, L Bellagamba¹⁹, F Bellina¹⁶⁷, G Bellomo⁸⁷, M Bellomo¹¹⁷, O Beltramello²⁸, A Belyam⁷², S Ben Ami¹⁴⁹, M Ben Moshe¹⁵⁰, O Benary¹⁵⁰, D Bencheikroun⁹², C Benchouk⁸¹, M Bendel⁷⁸, B H

Origins and 'demand' for CRediT

1. Authorship is an outdated and static concept
2. Need for transparency and accountability in scholarly publishing
3. Upward trend in collaborative, 'Team' science (in most disciplines)
- 4. Demand for information to support research assessment**
- 5. ... accompanied by a 'publish or perish' culture.**



medicina



Review

Perish or Publish Dilemma: Challenges to Responsible Authorship

Vygintas Aliukonis, Margarita Poškutė and Eugenijus Gefenas *

Centre for Health Ethics, Law and History, Institute of Health Sciences, Faculty of Medicine, Vilnius University, 03101 Vilnius, Lithuania; vygintas.aliukonis@mf.vu.lt (V.A.); margarita.poskute@mf.vu.lt (M.P.)

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Accepted: 1 December 2017



DOI: 10.3390/med10030328

Origins and ‘demand’ for CRediT

1. Authorship is an outdated and static concept
2. Need for transparency and accountability in scholarly publishing
3. Upward trend in collaborative, ‘Team’ science (in most disciplines)
4. Demand for information to support research assessment
5. ... accompanied by a ‘publish or perish’ culture.
- 6. Space limitations have gone away!**
- 7. And information about what ‘authors’ actually did is useful!**

Introduced in 2014



Contributor Roles Taxonomy

CRedit (Contributor Roles Taxonomy) is a high-level taxonomy, including 14 roles, that can be used to represent the roles typically played by contributors to scientific scholarly output. The roles describe each contributor's specific contribution to the scholarly output.



Term	Definition
Conceptualization	<i>Ideas; formulation or evolution of overarching research goals and aims.</i>
Methodology	<i>Development or design of methodology; creation of models.</i>
Software	<i>Programming, software development; designing computer programs; implementation of the computer code and supporting algorithms; testing of existing code components.</i>
Validation	<i>Verification, whether as a part of the activity or separate, of the overall replication/reproducibility of results/experiments and other research outputs.</i>
Formal Analysis	<i>Application of statistical, mathematical, computational, or other formal techniques to analyse or synthesize study data.</i>
Investigation	<i>Conducting a research and investigation process, specifically performing the experiments, or data/evidence collection.</i>
Resources	<i>Provision of study materials, reagents, materials, patients, laboratory samples, animals, instrumentation, computing resources, or other analysis tools.</i>
Data Curation	<i>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.</i>
Writing – Original Draft	<i>Preparation, creation and/or presentation of the published work, specifically writing the initial draft (including substantive translation).</i>
Writing – Review & Editing	<i>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.</i>
Visualization	<i>Preparation, creation and/or presentation of the published work, specifically visualization/data presentation.</i>
Supervision	<i>Oversight and leadership responsibility for the research activity planning and execution, including mentorship external to the core team.</i>
Project Administration	<i>Management and coordination responsibility for the research activity planning and execution.</i>
Funding Acquisition	<i>Acquisition of the financial support for the project leading to this publication.</i>

Values & challenges of CRediT

1. Bit about the origins and demand for CRediT

2. Adoption and implementation



Implementation in the scholarly publishing workflow

PERSPECTIVE

Transparency in authors' contributions and responsibilities to promote integrity in scientific publication

Marcia K. McNutt^{a,1}, Monica L. ...
Kathleen Hall Jamieson^f, Véronique ...
Sowmya Swaminathan¹, Peter ...

Edited by Karen S. Cook, Stanford



LEARNED PUBLISHING
Association of Learned & Professional Society Publishers

Industry Update

How can we ensure visibility and diversity in research contributions? How the Contributor Role Taxonomy (CRediT) is helping the shift from authorship to contributorship

Liz Allen ✉, Alison O'Connell, Veronique Kiermer

First published: 24 January 2019 | <https://doi.org/10.1002/leap.1210> | Citations: 15



ELSEVIER

F1000Research

BMJ Journals

SAGE
Publishing

... and many more!

Implementation in the other parts of the research system ...

Tenzing Documenting contributorship with CRediT

1. Create your infosheet

First copy and then fill out this [infosheet template](#)

2. Upload your infosheet

Browse...

No file selected

Show infosheet

3. Download the output

Show author contributions text

Show author list with affiliations

Show XML file (for publisher use)

Show [papaJa](#) YAML

How to use the application

1. Create your infosheet
 - Copy the infosheet template in your Google Drive *File* -> *Make a copy*
 - Fill out your copy of the infosheet
 - You can share it with your collaborators to make the process faster
2. Upload your infosheet
 - Download the filled out infosheet to your computer in a .csv, .tsv or .xlsx format
 - If you use .xlsx format the contributorship information should be on the first sheet
 - Click the "Browse" button and find your infosheet on your computer
 - If you want to take a look at the uploaded infosheet click "Show infosheet"
3. Download the output
 - You can generate 3 types of outputs:
 - A human-readable report of the contributions with the "Author Contributions text"
 - The contributors affiliation page information for the manuscript with the "Annotated author list with affiliations"
 - JATS XML containing the contributions with the "XML (for publishers only)"
 - [papaJa](#) compatible YAML code of the contributor roles

About



University
of Glasgow

Got a DOI? Claim and Give Some CRediT!



Supported by initiatives to encourage ‘Team Science’



Included recommendations for

Key Stakeholders



1. Open, transparent, standardized and structured **contribution** information.
2. Open and transparent research information infrastructure which links all **research inputs** and outputs to **individual contributors**
3. Minimise researchers' **administrative burden** and should be interoperable.

“Encourage responsible authorship practices and the provision of information about the specific contributions of each author.”



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<https://sfdora.org/>

PRESS RELEASES

CReditT secures philanthropic funding

By Alison McGonagle-O'Connell November 11, 2020

No Comments



ALFRED P. SLOAN
FOUNDATION



<http://credit.niso.org/press-releases/credit-secures-philanthropic-funding/>

- Further implementations across scholarly publishing workflow (e.g. PIDs for roles)
- Keeping it simple in workflows
- Resources & materials
- CReditT Interest Group – to keep taxonomy ‘fit for purpose’; to cover spectrum of disciplines

Values & challenges of CRediT

1. Bit about the origins and demand for CRediT
2. Adoption and implementation
3. Insights into ‘how research works’ (*‘research on research’*)



Research on research: focus on contributions

Gender and diversity in research

> Acad Med. 2016 Aug;91(8):1136-42. doi: 10.1097/ACM.0000000000001261.

Is Science Built on the Shoulders of Women? A Study of Gender Differences in Contributorship

Benoit Macaluso ¹, Vincent Larivière, Thomas Sugimoto, Cassidy R Sugimoto

Affiliations + expand

PMID: 27276004 DOI: [10.1097/ACM.0000000000001261](https://doi.org/10.1097/ACM.0000000000001261)

Transparency and recognition



Accountability in Research
Policies and Quality Assurance



ISSN: (Print) (Online) Journal homepage: <https://www.tandfonline.com/loi/gacr20>

Is authorship sufficient for today's collaborative research? A call for contributor roles

Nicole A. Vasilevsky, Mohammad Hosseini, Samantha Teplitzky, Violeta Ilik, Ehsan Mohammadi, Juliane Schneider, Barbara Kern, Julien Colomb, Scott C. Edmunds, Karen Gutzman, Daniel S. Himmelstein, Marijane White, Britton Smith, Lisa O'Keefe, Melissa Haendel & Kristi L. Holmes

Division of labour and evolution of roles

PLOS ONE

OPEN ACCESS PEER-REVIEWED

RESEARCH ARTICLE

The rise of the middle author: Investigating collaboration and division of labor in biomedical research using partial alphabetical authorship

Philippe Mongeon , Elise Smith, Bruno Joyal, Vincent Larivière


Published: September 14, 2017 • <https://doi.org/10.1371/journal.pone.0184601> • >> See the preprint

‘Politics’ of collaboration and ‘Team Science’!

OPINION



Opinion: Authors overestimate their contribution to scientific work, demonstrating a strong bias

 Noa Herz, Orrie Dan, Nitzan Censor, and Yair Bar-Haim

PNAS March 24, 2020 117 (12) 6282-6285; <https://doi.org/10.1073/pnas.2003500117>

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Intended and unintended consequences

1. Intention vs implementation

- a detail too far?
- CRediT-based evaluation system?
- Level of effort?
- Fractionalisation???
- Copyright?



<https://blogs.lse.ac.uk/impactofsocialsciences>

2. Focus on 'CRediT-seeking'

3. Keeping it simple vs value across fields

4. Need to keep any taxonomy up to date!



<https://www.niso.org/standards-committees/credit>

CRedit Community Interest Group coming soon!

Get involved!

What do you think?



Liz Allen

Director of Strategic Initiatives, F1000

 @allen_liz

NISO Plus | Feb 2021