

# Authorship in Publications

Who is an author?

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- Who gets to be an author? Is the ordering of authors important?
- Authorship conventions / norms in the natural sciences
- Authorship issues / disputes
- Unethical practices
  - Ghost authorship
  - Guest authorship
  - Pranks

# Trends in science publications

- Collaborative effort, sometimes involving multiple labs
- Large (and sometimes, ginormous) funding
- Large (and sometimes, huge) numbers of authors

These trends will likely accelerate.

In certain fields within biomedical sciences, papers with 100+ authors are not unheard of.



## 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.*<sup>\*</sup>

(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

In high energy physics, papers with more than 1000 authors are common.

Current record: 5154 authors <sup>[1]</sup>; 9 pages of paper and 24 pages for listing authors and their affiliations!

[1] [www.nature.com/news/physics-paper-sets-record-with-more-than-5-000-authors-1.17567](http://www.nature.com/news/physics-paper-sets-record-with-more-than-5-000-authors-1.17567) (accessed on 23 September 2019)

# Who gets to be an author in a paper?

Common sense: Anyone with substantial contribution to the work.

The International Committee of Medical Journal Editors (ICMJE) says:

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

[www.icmje.org/recommendations/browse/roles-and-responsibilities/defining-the-role-of-authors-and-contributors.html](http://www.icmje.org/recommendations/browse/roles-and-responsibilities/defining-the-role-of-authors-and-contributors.html) (accessed on 23 September 2019)

# Does the order of authors matter?

Broadly, yes.

- The last author is the boss (supervisor, principal investigator).
- The first author is the person who did most of the work.
- Corresponding author takes care of all communication with the journal

These are the privileged positions in the list. With larger teams, there is a greater demand for higher credit. Some papers insist on two people being named as first authors.

This is the convention / norm followed in most scientific fields.

# Power relations in academia

Who decides the author list?

Who decides the order of authors within that list?

What happens when disputes arise?

# Authorship responsibilities

From Nature Nanotechnology (2009):

*As an increasing volume of research is carried out by collaborations [...]. Therefore, for papers from such collaborations, we are now asking that at least one **senior member from each group** in the collaboration **takes responsibility** for that group's contribution to the manuscript. At a minimum, this author should agree to: **ensure that the original data is preserved and retrievable for re-analysis; ensure that the data reported in the paper are representative of the original data; and foresee and minimize obstacles to the sharing of data, materials, algorithms or reagents described in the paper.***

# Other authorship practices

- Random order: practiced in some corners of maths-oriented fields  
This is perhaps the most egalitarian way of deciding the author order.
- Alphabetical order: practiced in some other corners of these same fields.  
I'm okay with it, but Venkat Zutshi might disagree ...

# Authorship malpractices

- Ghost authorship  
Excluding someone who should be an author
- Honorary or gift authorship  
Including someone who should not be an author

# Authorship Pranks!

## Letters to the Editor

**P**UBLICATION of brief reports of important discoveries in physics may be secured by addressing them to this department. The closing date for this department is five weeks prior to the date of issue. No proof will be sent to the authors. The Board of Editors does not hold itself responsible for the opinions expressed by the correspondents. Communications should not exceed 600 words in length.

### The Origin of Chemical Elements

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*Applied Physics Laboratory, The Johns Hopkins University,  
Silver Spring, Maryland*

AND

H. BETHE

*Cornell University, Ithaca, New York*

AND

G. GAMOW

*The George Washington University, Washington, D. C.*

February 18, 1948

We may remark at first that the building-up process was apparently completed when the temperature of the neutron gas was still rather high, since otherwise the observed abundances would have been strongly affected by the resonances in the region of the slow neutrons. According to Hughes,<sup>2</sup> the neutron capture cross sections of various elements (for neutron energies of about 1 Mev) increase exponentially with atomic number halfway up the periodic system, remaining approximately constant for heavier elements.

Using these cross sections, one finds by integrating Eqs. (1) as shown in Fig. 1 that the relative abundances of various nuclear species decrease rapidly for the lighter elements and remain approximately constant for the elements heavier than silver. In order to fit the calculated curve with the observed abundances<sup>3</sup> it is necessary to assume the integral of  $\rho_0 dt$  during the building-up period is equal to  $5 \times 10^4$  g sec./cm<sup>2</sup>.

On the other hand, according to the relativistic theory of the expanding universe<sup>4</sup> the density dependence on time is given by  $\rho \cong 10^8/\beta$ . Since the integral of this expression diverges at  $t=0$ , it is necessary to assume that the building-up process began at a certain time  $t_0$ , satisfying the relation:

Hans Bethe was added as a co-author by the advisor, George Gamow.

Alpher, the student, was not amused.

## Two-, Three-, and Four-Atom Exchange Effects in bcc $^3\text{He}$

J. H. Hetherington and F. D. C. Willard

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(Received 22 September 1975)

We have made mean-field calculations with a Hamiltonian obtained from two-, three-, and four-atom exchange in bcc solid  $^3\text{He}$ . We are able to fit the high-temperature experiments as well as the phase diagram of Kummer *et al.* at low temperatures. We find two kinds of antiferromagnetic phases as suggested by Kummer's experiments.

F.D.C. Willard was the first author's cat, *Felis domesticus* Chester Willard.

Chester is the cat, Willard is Chester's father.

Why? To avoid converting "we" and "our" into "I" and "my" in the manuscript!

## Council of Science Editors

[www.councilscienceeditors.org/resource-library/editorial-policies/white-paper-on-publication-ethics/2-2-authorship-and-authorship-responsibilities/](http://www.councilscienceeditors.org/resource-library/editorial-policies/white-paper-on-publication-ethics/2-2-authorship-and-authorship-responsibilities/)

## International Committee of Medical Journal Editors

[www.icmje.org/recommendations/browse/roles-and-responsibilities/defining-the-role-of-authors-and-contributors.html](http://www.icmje.org/recommendations/browse/roles-and-responsibilities/defining-the-role-of-authors-and-contributors.html)

## Committee of Publication Ethics

[publicationethics.org/authorship](http://publicationethics.org/authorship)

## E.E. Tarkang et al: Publication Practices and Responsible Authorship: A Review Article, Journal of Public Health Affairs, 2017

[www.ncbi.nlm.nih.gov/pmc/articles/PMC5510206/](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC5510206/)

## M.K. McNutt et al: Transparency in authors' contributions and responsibilities to promote integrity in scientific publication, PNAS, 2018

[www.ncbi.nlm.nih.gov/pmc/articles/PMC5856527/](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC5856527/)

## Adam Marcus and Ivan Oransky: Why Fake Data When You Can Fake a Scientist?, Nautilus, 2016

[nautil.us/issue/42/fakes/why-fake-data-when-you-can-fake-a-scientist](http://nautil.us/issue/42/fakes/why-fake-data-when-you-can-fake-a-scientist)

**Thank you!**