

# Thoughts on research ethics

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# Ethics

- Moral philosophy (practical philosophy)
  - right/wrong, good/evil, duty, virtue, values,...
- Duty-based vs. consequential ethics
- Applied ethics
  - political ethics, business ethics, animal ethics, bioethics, machine ethics, everyday-life ethics....
  - **research ethics**

# Aspects in research

- Preventing harm to research subjects
  - animals?
- Humans as research subjects
  - handling of personal data
- Technology for good and bad intentions
  - dual-use dilemma
- Military-connected research?

# Research ethics

Research  
integrity

(behaviour in the  
research community)

# Terminology

- Research ethics
  - tutkimuseetiikka, forskningsetik
- Research integrity
  - rehellisyys, rehtiys, redlighet, hederlighet
- Responsible conduct in research
  - hyvä tieteellinen käytäntö
  - god forskningspraxis

2012



TUTKIMUSEETTINEN  
NEUVOTTELUKUNTA  
FORSKNINGSETISKA  
DELEGATIONEN  
FINNISH ADVISORY BOARD  
ON RESEARCH INTEGRITY

Hyvä tieteellinen käytäntö ja sen  
loukkausepäilyjen käsitteleminen Suomessa

God vetenskaplig praxis och handläggning  
av misstankar om avvikelser från den i Finland

Responsible conduct of research and procedures for  
handling allegations of misconduct in Finland

# Issues with responsible conduct

- Integrity, meticulousness, accuracy in performing research and storing data
- Research permits, ethical committee
- Publication of results in open and responsible fashion
- Due credit given to other researchers when their results are used
- Sources of financing, conflicts of interest
- Data protection legislation

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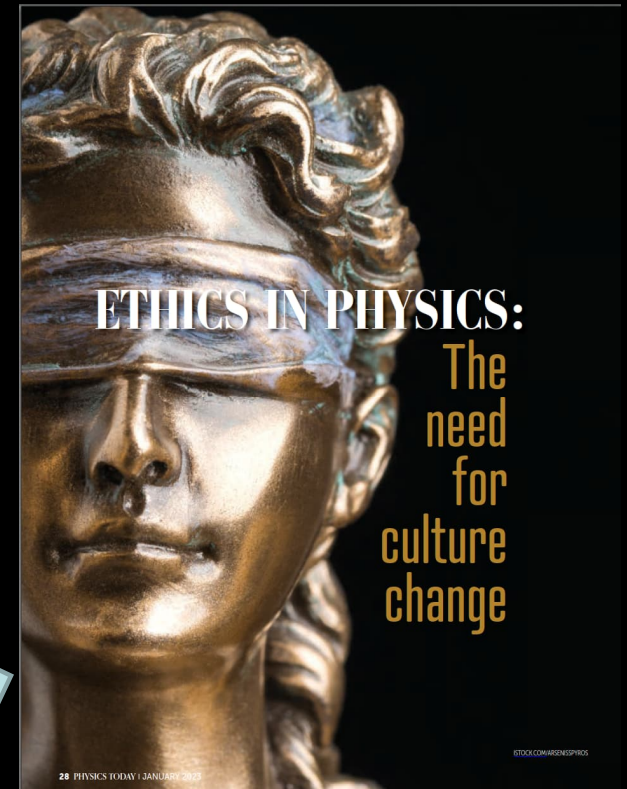
A publication of the American Institute of Physics

ARCTIC  
WILDFIRES

Universe in a  
quantum gas

Enceladus's  
watery eruptions

Ethics in physics

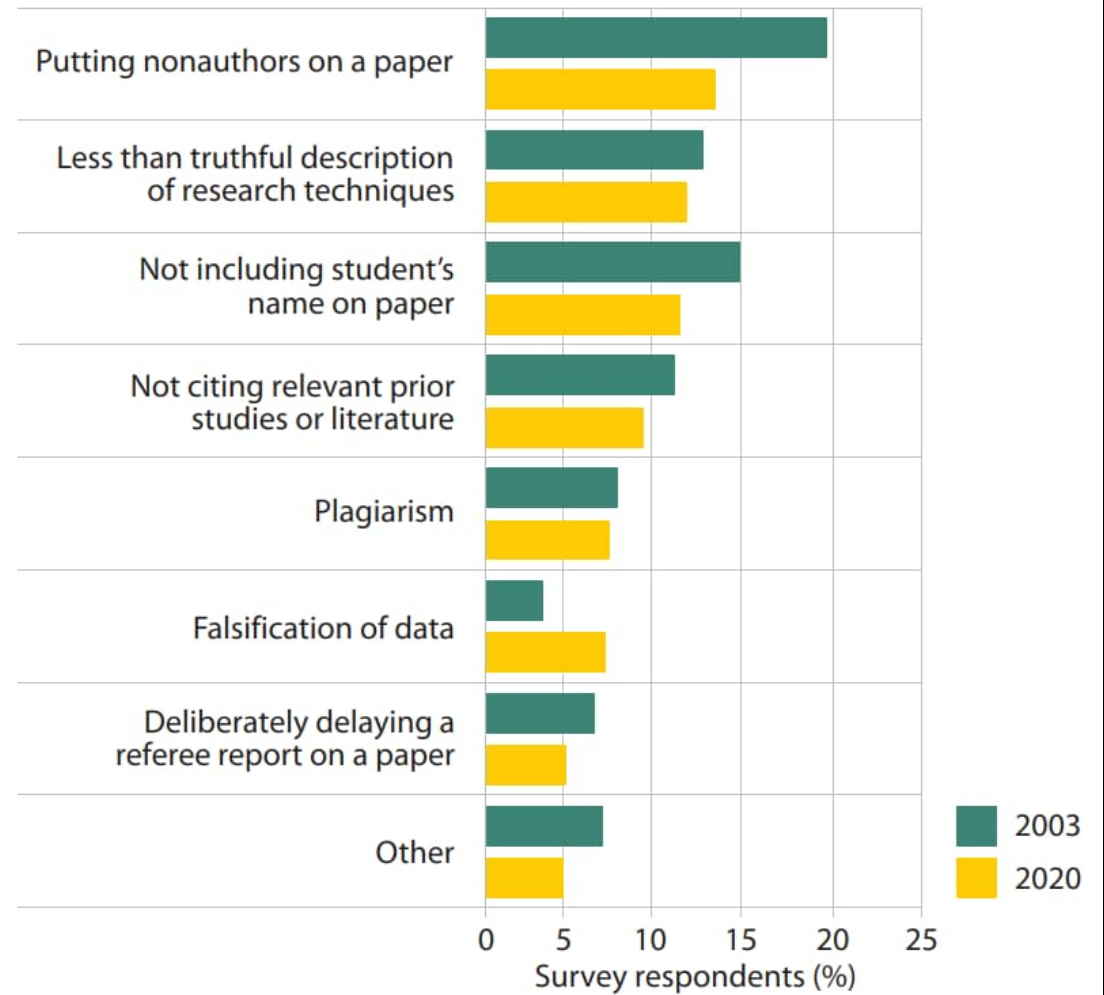


28 PHYSICS TODAY | JANUARY 2023

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### What is the nature of the violation?



F.A. Houle, K.P. Kirby, M.P. Marder:  
*Physics Today*, January 2023, pp. 29–36.

# Responsible conduct violations

- Research misconduct
  - fabrication (misrepresentation)
  - plagiarism
  - misappropriation
- Disregard for responsible conduct of research
  - denigration
  - careless reporting
  - inadequate record-keeping
  - self-plagiarism



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# Example

- Listing of (co)authors in a scientific publication

## Planck 2018 results. I. Overview, and the cosmological legacy of *Planck*

Planck Collaboration: Y. Akrami<sup>59,61</sup>, F. Arroja<sup>63</sup>, M. Ashdown<sup>69,5</sup>, J. Aumont<sup>99</sup>, C. Baccigalupi<sup>81</sup>, M. Ballardini<sup>22,42</sup>, A. J. Banday<sup>99,8</sup>, R. B. Barreiro<sup>64</sup>, N. Bartolo<sup>31,65</sup>, S. Basak<sup>88</sup>, R. Battye<sup>67</sup>, K. Benabed<sup>57,97</sup>, J.-P. Bernard<sup>99,8</sup>, M. Bersanelli<sup>34,46</sup>, P. Bielewicz<sup>80,8,81</sup>, J. J. Bock<sup>66,10</sup>, J. R. Bond<sup>7</sup>, J. Borrill<sup>12,95</sup>, F. R. Bouchet<sup>57,92</sup>, F. Boulanger<sup>71,56,57</sup>, M. Bucher<sup>2,6</sup>, C. Burigana<sup>45,32,48</sup>, R. C. Butler<sup>42</sup>, E. Calabrese<sup>85</sup>, J.-F. Cardoso<sup>57</sup>, J. Carron<sup>24</sup>, B. Casaponsa<sup>64</sup>, A. Challinor<sup>60,69,11</sup>, H. C. Chiang<sup>26,6</sup>, L. P. L. Colombo<sup>34</sup>, C. Combet<sup>73</sup>, D. Contreras<sup>21</sup>, B. P. Crill<sup>66,10</sup>, F. Cuttaia<sup>42</sup>, P. de Bernardis<sup>33</sup>, G. de Zotti<sup>43,81</sup>, J. Delabrouille<sup>2</sup>, J.-M. Delouis<sup>57,97</sup>, F.-X. Désert<sup>98</sup>, E. Di Valentino<sup>67</sup>, C. Dickinson<sup>67</sup>, J. M. Diego<sup>64</sup>, S. Donzelli<sup>46,34</sup>, O. Doré<sup>66,10</sup>, M. Douspis<sup>56</sup>, A. Ducout<sup>57,54</sup>, X. Dupac<sup>37</sup>, G. Efstathiou<sup>69,60</sup>, F. Elsner<sup>77</sup>,

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1 July 1932

### POSSIBLE NEW EFFECTS IN SUPERCONDUCTIVE TUNNELLING \*

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Received 8 June 1962

We here present an approach to the calculation of tunnelling currents between two metals that is sufficiently general to deal with the case when both metals are superconducting. In that case new effects are predicted, due to the possibility that elec-

number on the other side unchanged, and pair creation operators  $S_k^\dagger$  which add a pair of electrons on one side leaving the quasi-particle distribution unchanged. The Hermitean conjugate destruction operators have similar definitions. The  $S$  opera-

provides our strongest constraints to the parameters of all standard cosmological models and some of the tightest limits available on deviations from that model. The 6-parameter  $\Lambda$ CDM model continues to provide an excellent fit to the cosmic microwave background data at high and low

**OPEN ACCESS**



## Multi-messenger Observations of a Binary Neutron Star Merger\*

LIGO Scientific Collaboration and Virgo Collaboration, Fermi GBM, INTEGRAL, IceCube Collaboration, AstroSat Cadmium Zinc Telluride Imager Team, IPN Collaboration, The Insight-HXMT Collaboration, ANTARES Collaboration, The Swift Collaboration, AGILE Team, The 1M2H Team, The Dark Energy Camera GW-EM Collaboration and the DES Collaboration, The DLT40 Collaboration, GRAWITA: GRAvitational Wave Inaf TeAm, The Fermi Large Area Telescope Collaboration, ATCA: Australia Telescope Compact Array, ASKAP: Australian SKA Pathfinder, Las Cumbres Observatory Group, OzGrav, DWF (Deeper, Wider, Faster Program), AST3, and CAASTRO Collaborations, The VINROUGE Collaboration, MASTER Collaboration, J-GEM, GROWTH, JAGWAR, Caltech-NRAO, TTU-NRAO, and NuSTAR Collaborations, Pan-STARRS, The MAXI Team, TZAC Consortium, KU Collaboration, Nordic Optical Telescope, ePESSTO, GROND, Texas Tech University, SALT Group, TOROS: Transient Robotic Observatory of the South Collaboration, The BOOTES Collaboration, MWA: Murchison Widefield Array, The CALET Collaboration, IKI-GW Follow-up Collaboration, H.E.S.S. Collaboration, LOFAR Collaboration, LWA: Long Wavelength Array, HAWC Collaboration, The Pierre Auger Collaboration, ALMA Collaboration, Euro VLBI Team, Pi of the Sky Collaboration, The Chandra Team at McGill University, DFN: Desert Fireball Network, ATLAS, High Time Resolution Universe Survey, RIMAS and RATIR, and SKA South Africa/MeerKAT  
(See the end matter for the full list of authors.)

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### Abstract

On 2017 August 17 a binary neutron star coalescence candidate (later designated GW170817) with merger time

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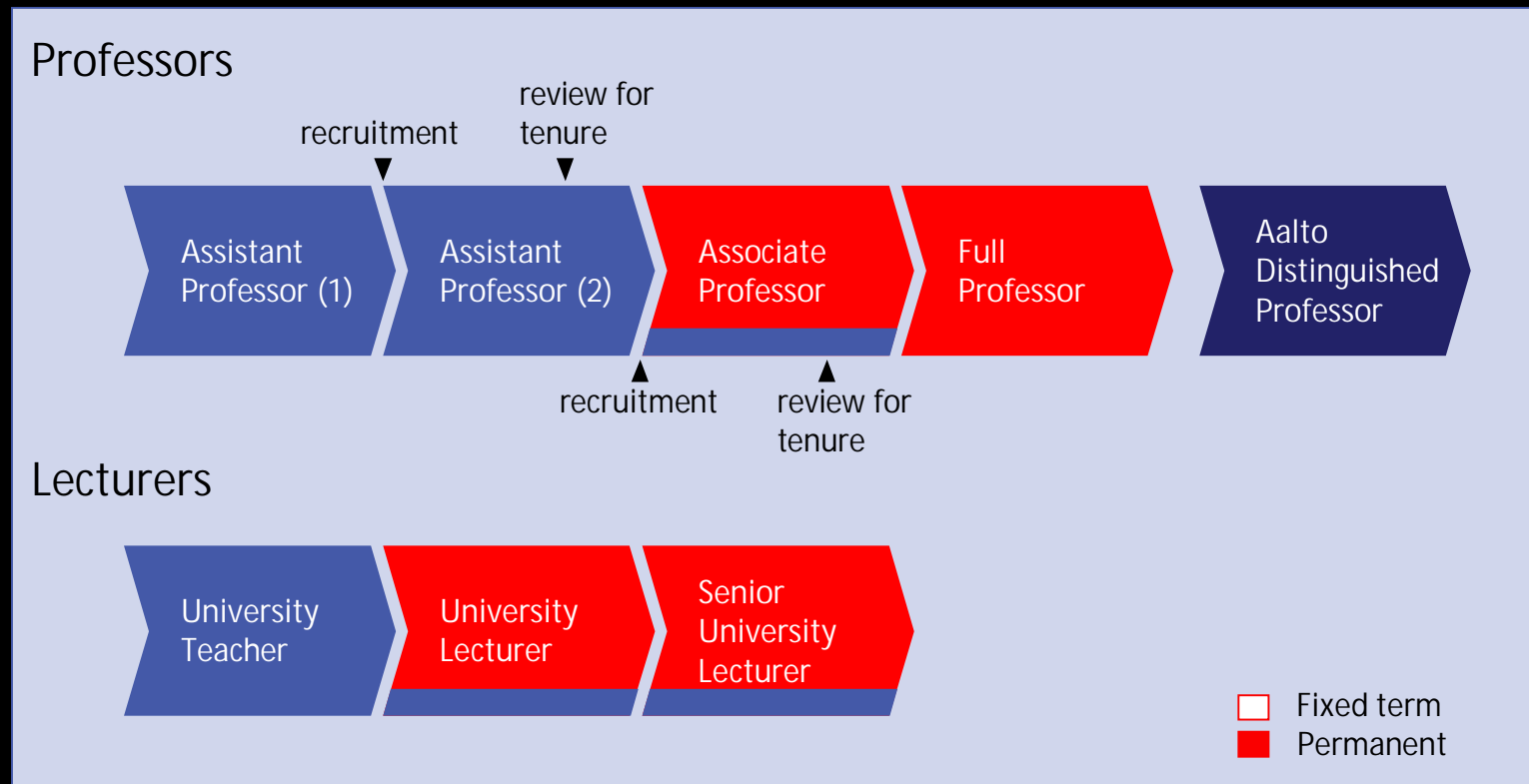
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# Risks of measurement

- Quantitative approach
- Number of publications
- Media publicity
- Number of related metrics (citations, etc.)

# Aalto University Tenure Track



# Tenure track



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THE SCIENTIFIC ETHIC

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I HAVE COME TO the end of my counsel to you, and will now close these letters with advice on proper behavior in the conduct of your research and publication.

You are not likely to be directly pressed during your career on such largely philosophical questions as the propriety of creating artificial organisms or conducting surgical experiments on chimpanzees. Instead, by far the greatest proportion of moral decisions you will be required to make is in your relationships with other scientists. Entrepreneurial endeavor beyond the level of puttering creates difficulties other than the mere risk of failure. It will put you into a competitive arena for which you may not be emotionally prepared. You may find yourself in a race with others who have chosen the same track. You will worry that someone better equipped

and financed will reach the goal before you. When multiple investigators create an important new field simultaneously, they often create a golden period of excited cooperation, but in later stages, as different groups follow up on the same discoveries, some amount of rivalry and jealousy is inevitable. For you, if successful, there will be gentle competitors and ruthless competitors. There will be gossip and some protective secrecy. That should come as no surprise. Business entrepreneurs suffer when competitors beat them to the marketplace. Should we expect scientists to be different?

Finally, remember that you enter a career in science above all in the pursuit of truth. Your legacy will be the increase and wise use of new, verifiable knowledge, of information that can be tested and integrated into the remainder of science. Such knowledge can never be harmful by itself, but as history has so relentlessly demonstrated, the way it is twisted can be harmful, and if such knowledge is applied by ideologues, it can be deadly. Be an activist as you deem necessary—and you can be highly effective with what you know—but never betray the trust that membership in the scientific enterprise has conferred upon you.