Editor of Science Magazine, *Jake S. Yeston*, sent to jyeston@aaas.org
Associate Professor *Sergey Frolov*, sent to flolovsm@pitt.edu
Postdoctoral researcher *Vincent Mourik*, sent to vincentmourik@gmail.com
Professor *Charles M. Marcus*, sent to marcus@nbi.dk
Head of the Niels Bohr Institute, Professor *Jan W. Nielsen*, sent to head_of_institute@nbi.ku.dk

**THE PRACTICE COMMITTE**

NØRREGADE 10
1165 KØBENHAVN K

21 JUNE 2022

DIR +45 40 58 09 25

mads@jur.ku.dk

SAG: **504-0062/21-7000
DOK.NR.: 23468186
CASE NOS 74 & 77

**Statement on the status of the certain ongoing investigations with the Practice Committee of the University of Copenhagen**

On behalf of the Committee for Responsible Research Practices at the University of Copenhagen (the "Practice Committee", in the following referred to as the *PC*), I shall hereby give the following status of the investigations that PC has initiated following two complaints submitted by

- the editors of the Science Magazine on behalf of professors Frolov and Mourik (case no. 74) and by
- professors Frolov and Mourik personally (case no. 77).

## 1. Background

On 30 July 2021, the Editor-in-Chief of Science Journal, *H. Holden Thorp*, published the following "Editorial Expression of Concern" regarding the Research Article "Flux-induced topological superconductivity in full-shell nanowires" by S. Vaitiekėnas et al. (Professor *Charles M. Marcus* being the last author), published in Science Journal on 27 March 2020:

*"Pursuant to a reader request, the authors released additional data — archived at Zenodo (2) — taken in association with the project that led to their paper. After the release of the additional data, two readers expressed a joint concern that the tunneling spectroscopy data published in the original paper are not representative of the entirety of the data released in association with this project.*

*While we await the outcome of a full investigation commenced by the authors' academic institution (Niels Bohr Institute, University of Copenhagen), we are alerting our readers to this concern."*

The said "reader request" was submitted by two of the complainants before the PC, mentioned above, namely *Vincent Mourik* and *Sergey Frolov*.

Professor Thorp's reference to a "full investigation" does not mention the fact that on 3 February 2021 – i.e. about five months *prior* to the said "Editorial Expression of Concern" – the head of the Niels Bohr Institute at the University of Copenhagen (in the following referred to as the *NBI*), Professor *Jan W. Nielsen*, acting as the chair of an evaluation committee appointed for that purpose, made the following concluding statement to editor-in-chief *H. Holden Thorp* of Science Magazine:

*"(a) We find no problems with the paper, nor with the conclusions in the paper, nor with the data supporting the claims of the paper.*

*(b) We find the complains of Mr Frolov and Mr Mourik unjustified.*

*(c) All data connected with the present paper has - according to demand – been transmitted rightfully to third parties. No additional data is left out."*

## 2. The first case before the PC (case no. 74)

Following this line of events, a formal complaint was filed with the PC by the editors of Science Magazine (*Jake Yeston*) on 5 October 2021.

The complaint made reference to a 30 page *"Post-publication analysis of 'Flux-tuned topological superconductivity in full-shell nanowires' Vaitiekenas et al. Science 2020"* written by Mourik and Frolov.

The PC understands the fact that the Science Magazine submitted this complain to mean that Professor Thorp's wish to have a "full investigation" of the basis for the concerns that had given rise to the complaint which had led to the Editorial Expression of Concern had not been accommodated.

In its 30 July 2021 note, Professor Thorp thus stated that the editors of Science Magazine

*"… believe that an independent, transparent investigation by experts in this subfield of Majorana physics is necessary to ascertain whether or not the*

*authors unethically withheld data that undermined the conclusions of their paper."*

## 3. Preliminary deliberations of the PC

According to the Danish Act on Research Misconduct (in the following referred to as, the Act), the PC is competent to hear cases regarding "questionable research practices" which according to Section 3(1)(5) of the Act is defined as:

*"Violation of generally accepted standards for responsible research practices, including the standards in The Danish Code of Conduct for Research Integrity and other applicable institutional, national and international practices and guidelines for research integrity."*

In general, the PC does not hear cases that are essentially related to scientific disagreements. Such disagreements are often based upon differences in views and perceptions that might indeed be well-founded if based on accepted scientific and academic methodologies, although they lead to different results and conclusions.

A similar delimitation of competences applies to the Danish Committee on Research Misconduct, see Sections 3(2)(2) and 3(2)(3) of the Act.

In this connection it should be borne in mind that the members of the PC do not have – and cannot be accepted to have – scientific training and insight into all the different areas of science that may give causes to complaints. Any decision by the PC that might involve such details would require external expert evidence.

This practical concern seems to be accepted, not only in Denmark but also within other academic institutions. However, it is also known that *specific* points of criticism may lead academic institutions to take such steps.

Within the field of *majorana physics* such an investigation was made by the Technical University in Delft, NL, in 2020. Here, a panel of experts appointed by the university submitted a report regarding some of the conclusions reached by the paper "Quantized Majorana conductance" published in *Nature* in 2018. See https://zenodo.org/record/4545812#.YkQlgzVJE2y).

In case no. 74, where the editors of Science Magazine have specifically requested the PC to step in and conduct a "full" investigation, the PC finds

that this complaint is such a specific example. For that reason, the PC has decided to accommodate this request.

In taking that decision the PC has found it necessary to underline that this investigation should be both transparent and independent. It is thus important to the PC that none of the appointed experts have personal relations to any of the parties which are affected by the investigation – including the recipients of the present letter – that might bring them into a conflict of interest in performing their tasks.

Following up on this decision, the PC has spent the last many months to identify a number of experts and to agree with them on a suitable set of Terms of Reference. This work is now concluded.

It is therefore my pleasure to inform you that the PC intends to appoint the following members of the expert panel:

- *Sophie Guéron*, CNRS Research Director, Université Paris-Saclay, Laboratoire de Physique des Solides, Orsay, France;
- *Pertti Hakonen*, Professor, Department of Applied Physics, Aalto University School of Science, Finland;
- *Allan MacDonald*, Professor of Physics, University of Texas at Austin, Texas, USA
- *Alfredo Levy Yeyati*, Professor, Departamento de Física Teórica de la Materia Condensada Universidad Autónoma de Madrid, Madrid, Spain.

Should any of the recipients of this letter have concerns regarding the appointment of this panel of experts, such concerns must be stated within the present week, i.e. not later than Friday the 24th of June.

If concerns are expressed within the said timeframe, it will up to the PC to take its final decision on its appointment. The invitation for you to bring forward your possible concerns is *not* a right to "veto" any of the names. The PC will thus make the final decision on the appointment.

## 4. The second case before the PC (case no. 77)

On 21 December 2021, Frolov & Mourik filed a second complaint against Charles M. Marcus, this one time for failing to provide the full data in support of physics claims in 6 other papers published by the Marcus group.

The papers are the following:

- Vaitiekenas et al Nature Physics 2021
- Albrecht et al Nature 2016
- Deng et al Science 2016
- Deng et al PRB 2018
- Nichele et al PRL 2017
- Sherman et al Nature Nano 2017

In a letter to the PC on 15 January 2022, Professor Marcus denied that he has committed any case of research misconduct by not accommodating the requests by the two complainants. Among other points, he refers to the fact that none of the journals that have published the said articles have asked him to provide more data than he has already done.

For the reasons set forth above in paragraph 3, and based upon this information, the PC sees no reason to grant this request presently. The PC will therefore take a final decision on this complaint when the conclusions of the expert panel are known.

## 5. The way forward

If no concerns have been raised on the appointment of the expert panel as suggested above in paragraph 3, the PC expects the panel of experts to commence its work within the next couple of weeks.

Sincerely yours,

*Mads Bryde Andersen*
*Professor, dr.jur.*
*Chairman of the Practice Committee*