



Resolution on the initiative sent to the Ethics Committee of the Faculty of Science of Palacký University on 21 February 2022

The Ethics Committee of the Faculty of Science of Palacký University (hereafter referred to as EC FoS UP) received the following initiative (Appendix 1):

An expression of concern to the Ethics Committee of the Faculty of Science of Palacký University, Olomouc

Dear Ethics Committee of the Faculty of Science of Palacký University,

I have noticed the following concern presented at

<https://pubpeer.com/>

about the article “

”,

authored by

(with the corresponding authors marked with an asterisk)

, which is available at

In Figure 4 therein, are presented which, when sufficiently magnified, exhibit clear repetitive patterns for different values, as marked in Figures A and B in this document. Besides the repetitive patterns one can also observe solitary points in the . Both features are marked by rectangular frames for clarity in Figures A and B below.

I am of the opinion that the probability that such noise pattern repetitions and solitary points would be present in an actually measured , i.e. in a , and in at once, is extremely low. I express my concern that the in the article were manipulated and that the presented evidence points to a problem in ethics in research in the aforementioned publication.

Due to the fact that four out of authors of the article, published in , affiliated the Faculty of Science of Palacký University, and one of the authors was a student of the faculty at that time, I regard the concern to be relevant to the attention of the Ethics Committee of the Faculty of Science of Palacký University. As a member of this committee I decided to use my right to formally file this as a case to be considered by this committee according to the Article 1, Paragraph 4 of the updated Status of this committee, effective since 15th October 2020.

Also, the article thanks to the following grants supported by the of the Czech Republic, and also the student grant project IGA of the Palacký University. Overall, the research presented in the article is supported by public grants allocated to the Faculty of Science of Palacký University. In detail, the acknowledgements express thanks to "...the Ministry of Education, Youth and Sports of the Czech Republic () and the assistance provided by the

under project [REDACTED]. The work was also partly funded by the Internal Grant of the Palacký University Olomouc, Czech Republic (Project No. [REDACTED]).", where

- * Project [REDACTED] was led by prof. [REDACTED]: [REDACTED];
- * Project [REDACTED] was led by dr. [REDACTED] at the Institute of Physical Chemistry of J. Heyrovský, ASCR, with prof. [REDACTED] being the co-investigator and co-recipient for Palacký University: [REDACTED];
- * Palacký U student support project [REDACTED] was led by dr. [REDACTED]; [REDACTED].

Sincerely and with thanks for considering this case,

in Olomouc, 21th February 2022

Mgr. Jiří Kvita, Ph.D.

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Figure A: Details of the [REDACTED] with repetitive noise patterns as well as solitary points marked by rectangles.

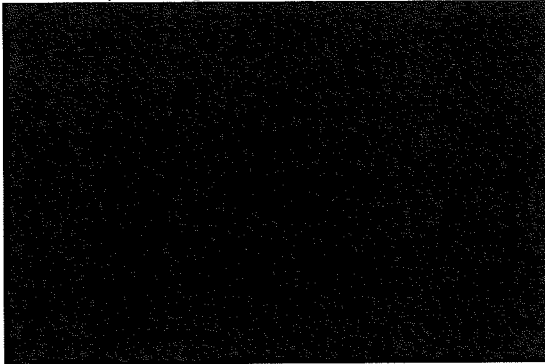
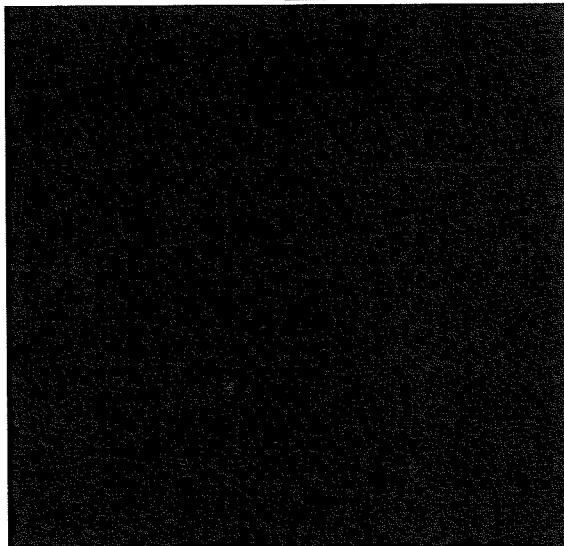


Figure B: Details of all the [REDACTED] with repetitive noise patterns marked by rectangles.



Firstly, EC FoS UP had to assess whether they are entitled to deal with the initiative, because none of the authors is currently employed at the Faculty of Science, Palacký University. Four of the [REDACTED] authors are affiliated to the Faculty of Science, which means they were employees

(████████████████████) or students (████████) of the faculty. Above all, the article and the cited grants are registered under the faculty in the Information Register of R&D results (RIV). Therefore, the EC FoS UP unanimously decided to deal with the initiative. As one of the authors of the article was a Ph.D. student at the Faculty of Science at that time, the committee invited representatives of students to the assessment of the initiative. The first step of the EC FoS UP was to address both corresponding authors and request their comments on the initiative (Appendix 2). Neither of them responded to the call. To assess the plausibility of the published ██████████, the EC FoS UP addressed six professionals in the field of ██████████. They were asked to assess (1) repeated patterns in the curves, and (2) the existence of bounced points (please find the full version of the queries with the attached files in Appendix 3). Three of the addressed professionals sent us their opinion. The first stated: *"The repeating identical sections of noise indicate interference in the measured ██████████."* (Appendix 4) The second summarized his detailed analysis: *"All four ██████████ patterns shown in Figure 4 of this publication show repetitive noise patterns. Hence, these curves do not represent authentic ██████████ patterns. Additionally, all curves contain singular points, which cannot occur in an authentic pattern."* (Appendix 5). The third author states in his opinion *"The suspicious sequences are not entirely repetitive, but only at the noise level. The intensity level itself differs. Thus, it may indicate a suspicion of not measured and repeated data but of calculated data with artificially produced noise by a generator of pseudo-random numbers."* (Appendix 6). In his opinion, the author admits the existence of repeating sequences in measured intensities due to the equipment. However, he explicitly adds that it is not possible at the noise level.

Conclusion: Based on the obtained expert opinions, EC FoS UP could not find any other reasonable explanation for the repetitive sequences of the graph and the bounced points, other than it is at least a falsification. EC FoS UP considers it a serious violation of the Code of Ethics for the employees and students of Palacký University, Olomouc in the following points:

- 1) The authors falsified the results of their research (violation of paragraph 4, Part III: "The researchers shall ensure completeness, verifiability, and objective interpretation when publishing their findings and results." And paragraph 3, Part III: "The researchers are aware of their responsibility of the objectivity, reliability, and accuracy of their research and respect the limits of the methods used.").
- 2) Associate Professor ██████████, as one of the corresponding authors employed at the Faculty of Science, Palacký University at the time of publishing the article, did not respond to the request of EC FoS UP to comment on the possible falsification of his research conducted at the faculty (violation of paragraph 13, Part III: "If a researcher discovers a mistake in his/ her publications, he/ she takes all necessary and possible steps to correct it. He/she does not attempt to conceal or disguise it.").

With respect to the zero communication of the authors and with regard to the proven fact that the article was not a part of the dissertation project of Dr. ██████████, EC FoS UP did not prove any violation of the Code of Ethics within the Principles of Pedagogical Activities.

Recommendation of the Ethics Committee of the Faculty of Science, Palacký University for the Dean of FoS, UP

This Committee recommends that the Dean of The Faculty of Science UP requests the Scientific Board of the Faculty of Science to consider whether not to ask the editors of the journal to retract the article because it is included in the scored results. We further recommend that the Dean informs the main researchers of the grants mentioned in the acknowledgement of the publication and also the Director of [REDACTED] and the [REDACTED] Supervisory Board, because a part of the author team is still employed by Palacký University.

In Olomouc, 11. 7. 2022

Mgr. Aneta Bužková

Mgr. Jiří Kvita, Ph.D.

doc. Ing. Ivo Machar, Ph.D.

Mgr. Jan Roik

RNDr. Jana Skopalová, Ph.D.

doc. RNDr. Mgr. Ivan Hadrián Tuf, Ph.D.
chairman EC FoS UP

RNDr. Rostislav Vodák, Ph.D.

List of appendices

Appendix 1: Full text of the complaint

Appendix 2: Request for comments, sent to the corresponding authors

Appendix 3: Request for expert opinion sent to experts in the method

Appendix 4: Expert opinion of Doc. Ing. [REDACTED], CSc.

Appendix 5: Expert opinion of Prof. Dr. [REDACTED]

Appendix 6: Expert opinion of Mgr. [REDACTED], Ph.D.