Jury Member Report – Doctor of Philosophy thesis.

Name of Candidate: Yuliya Kan

PhD Program: Materials Science and Engineering

Title of Thesis: Development of core-shell fiber composite based on polyvinyl alcohol modified with graphene oxide and silica for biomedical applications

Supervisor: Professor Alexander Korsunsky

Name of the Reviewer: Prof. Dr Roman A. Surmenev

I confirm the absence of any conflict of interest (Alternatively, Reviewer can formulate a possible conflict)	**Date: 16-12-2022**

The purpose of this report is to obtain an independent review from the members of PhD defense Jury before the thesis defense. The members of PhD defense Jury are asked to submit signed copy of the report at least 30 days prior the thesis defense. The Reviewers are asked to bring a copy of the completed report to the thesis defense and to discuss the contents of each report with each other before the thesis defense.

If the reviewers have any queries about the thesis which they wish to raise in advance, please contact the Chair of the Jury.

Reviewer's Report

Reviewers report should contain the following items:

- Brief evaluation of the thesis quality and overall structure of the dissertation.
- The relevance of the topic of dissertation work to its actual content
- The relevance of the methods used in the dissertation
- The scientific significance of the results obtained and their compliance with the international level and current state of the art
- The relevance of the obtained results to applications (if applicable)
- The quality of publications

The summary of issues to be addressed before/during the thesis defense

In general, the work looks very solid and strong. The aim and objectives are well-presented and described in sufficient details.

The thesis quality can be estimated as high. The content of dissertation is well-structured and presented on a high scientific level.

The concept of the study was elaborated considering current knowledge in the field. State-of-the-art in the field is clearly presented and the provided analysis allowed concluding that the importance of the results obtained are quite high for the field.

The results are applicable after required investigations/approval have been obtained.

The quality of publications refers to Q1/Q2 journals.

Some comments/remarks on the PhD thesis.

1. Usually degree of crystallinity is calculated using DSC (which is also presented in the thesis), XRD allows also revealing nanocrystalline phase which may affect the shape of the amorphous halo, thus calculations of crystallinity can not be estimated correctly.
2. Usually GO contains some degree of reduction. Is it clearly visible via Id/Ig bands ration obtained via Raman spectroscopy? I would suggest a brief comment of the degree of reduction of the used GO. I observe that I_D/I_G ration exceeds 1. In addition, conductivity is an important property while electrospinning is used and GO or rGO behave differently due to different conductivity.
3. Based on my experience statistical analysis is required when tensile testing is used, since there are a lot of parameters affecting the results of the measurements. I would recommend providing the results as a mean and a standard deviation to reveal significance of the differences between the groups.

Provisional Recommendation

☑ *I recommend that the candidate should defend the thesis by means of a formal thesis defense*

☐ *I recommend that the candidate should defend the thesis by means of a formal thesis defense only after appropriate changes would be introduced in candidate's thesis according to the recommendations of the present report*

☐ *The thesis is not acceptable and I recommend that the candidate be exempt from the formal thesis defense*