

Jury Member Report – Doctor of Philosophy thesis.

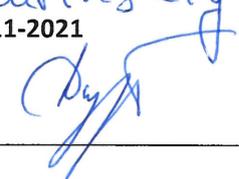
Name of Candidate: Maria Zhilyaeva

PhD Program: Materials Science and Engineering

Title of Thesis: A novel straightforward wet pulling technique to fabricate carbon nanotube fibers

Supervisor: Professor Albert Nasibulin

Name of the Reviewer:

<p>I confirm the absence of any conflict of interest</p> <p>(Alternatively, Reviewer can formulate a possible conflict)</p>	<p>Dmitry Dzhevdenskiy Date: 17-11-2021</p> 
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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

The thesis authored by Maria Zhilyaeva presents the topic on development and implementation of a novel wet pulling technique to fabricate carbon nanotube fibers where the results been presented based on application cases for both active and passive flexible electronic components. In the thesis, the author represents the novel manufacturing approach to fabricate fibers based on carbon nanotube fibers. Furthermore, the author developed designs and demonstrate the created sensors.

The thesis has further the state of contemporary knowledge related to implementation of carbon nanotube fibers in wearable electronics. The results are of interest to academic researchers but also those who working in industry.

The results of the work has published by the candidate in three scientific papers with high impact factor journals, which could be considered as an evidence for the quality and novelty of obtained results.

The thesis "A novel straightforward wet pulling technique to fabricate carbon nanotube fibers" is written by Maria Zhilyaeva and fulfills the requirements. However, the thesis is not free from imperfections and can be improved.

(1)

Section 3.4: The description of FEA analysis and results should be discussed more in details, especially what was an assumption behind modeling of SWCNT and therefore material model and specific constants used to perform the simulation.

(2)

Since this work has potential practical application, there must be a discussion presented on the repeatability factor of the fibers produced by the wet pulling method. Especially, discussion about developed technique limitations at the industrial scale.

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