

Jury Member Report – Doctor of Philosophy thesis.

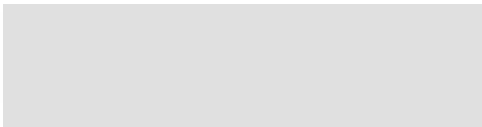
Name of Candidate: Stanislav Chernyshikhin

PhD Program: Mathematics and Mechanics

Title of Thesis: Tailoring the functional properties of NiTi shape memory alloy by high-resolution laser powder bed fusion

Supervisor: Associate Professor Igor Shishkovsky

Name of the Reviewer:

I confirm the absence of any conflict of interest 	Date: 5-10-2023
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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 submitted thesis is generally clearly written, and figures are well documented. The structure of the thesis is excellent and corresponds to the logical development of the research.

The research is of very high quality and quite innovative.

The publications are excellent, and a patent is included. The results of the research are highly applicable.

There are a number of grammatical and sentence structural problems in the thesis. Articles are sometimes missing or used improperly, such as :

Page 40: The executive files were prepared Magics software (Materialise, Belgium) build processor.

Page 73: Thus, the heat conduction for investigated temperature range carried out by electrons.

Page 77: As far as common ratio is less than one for any physical powder...

Page 97: Results of thesis can be subdivided into four main bodies of knowledge. First part involves experimental study of single track based manufacturing via LPBF, second body include investigations of NiTi thermophysical properties, the third related to simulation of the NiTi melt pool during LPBF, and the fourth focused on the particular application of the technology for manufacturing of endodontic files.

There are many cases like these.

I suggest carrying out a very careful review of the text.

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