

Jury Member Report – Doctor of Philosophy thesis.

Name of Candidate: Rahim Samanbakhsh

PhD Program: Engineering Systems

Title of Thesis: Design of power converters for renewable energy sources

Supervisor: Assistant Professor Federico Martin Ibanez, Skoltech

Name of the Reviewer: Vladimir Terzija, Full Professor

I confirm the absence of any conflict of interest (Alternatively, Reviewer can formulate a possible conflict)	Date: 10-11-2022
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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

1. Brief evaluation of the thesis quality and overall structure of the dissertation.

The quality of the Thesis is very good and its structure is at the expected standards needed to be satisfied for the formal Thesis defense.

2. The relevance of the topic of dissertation work to its actual content

The topic selected is timely and important for different types of applications.

3. The relevance of the methods used in the dissertation

The methods used are novel and modern. The experimental validation is quite impressive.

4. The scientific significance of the results obtained and their compliance with the international level and current state of the art

The results obtained are at a very good international level. They have been recognized as appropriate (see the list of journal publications, resulted from the Thesis)

5. The relevance of the obtained results to applications (if applicable)

In the context of the next generation of MMCs, the presented new results are very important.

6. The quality of publications

The publications are presented in high-impact journals.

The summary of issues to be addressed before/during the thesis defense – see below.

1. References should be given in the **Table of Contents**.
2. List of symbols should be given in alphabetic order
3. ANPC missing in the list of symbols. Make sure that all abbreviations are included in the list.
4. Typos, e.g. in “However, the input three DC sources should be constant, if the DC voltages are **reduces**, output voltage will be lower.” (should be **reduced**).
5. Typose, e.g. in “**Chapter 2 and 3** These” (should be **Chapters**).
6. Check the format of Figure 4.10.
7. Chapter 7, Conclusions – disappointingly weak. Short, without proper conclusions, summarizing the work done. More information must be provided.
8. Chapter 7, Future work: “In future works, the combination of multilevel inverter and Z-source converter topologies can be studied.” – no justification why this is important is given.

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