

## Jury Member Report – Doctor of Philosophy thesis.

**Name of Candidate:** Ilya Novikov

**PhD Program:** Materials Science and Engineering

**Title of Thesis:** Assembling networks of single-walled carbon nanotubes for electronic and optical applications

**Supervisor:** Professor Albert Nasibulin, Skoltech

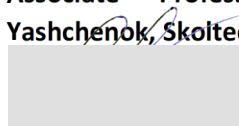
**Co-supervisors:**

Professor Tanja Kallio, Aalto University

Assistant Professor Dmitry Krasnikov, Skoltech

Assistant Professor Fedor Fedorov, Skoltech

**Name of the Reviewer:**

I confirm the absence of any conflict of interest	<b>Associate Professor, Alexey Yashchenok, Skoltech</b>  <b>Date: 28-07-2023</b>
---	--

*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**

The dissertation is of high quality and well organized. The author has introduced the main goal of the work with the related objectives to be solved during the implementation of dissertation. The dissertation introduces the actual topic of the work that are quasi 2D films carbon nanotubes and 3D polymer/carbon nanotubes structures along with current problems that should be addressed before application of such materials in the field of optoelectronics, sensors, functional coatings and devices. The author used different approaches to fabricate such constructs and improve physical properties of 2D and 3D carbon nanotubes based structures. For that the author has employed a number of powerful methods to characterize the developed structures and study their physical properties. The work has substantial scientific impact, in particular in fabrication of 2D and 3D carbon nanotube structures, decreasing of resistance of 2D films in respect of light irradiation, improving mechanical parameters, conductivity of 3D nanocomposites and their cost. These achievements are very relevant for practical applications, for example as transparent conductive films in electronic and optoelectronic devices, electromagnetic shielding structures in THz frequency range, different physical and chemical sensors. The results of the dissertation are published in high-ranked peer-reviewed journals indexing in WoS and Scopus data based. In view of this, I strongly recommend the candidate for defense.

**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*