

Jury Member Report – Doctor of Philosophy thesis.

Name of Candidate: Anton Putintsev

PhD Program: Physics

Title of Thesis: Ambient Polaritonics

Supervisor: Professor Pavlos Lagoudakis

Co-supervisor: Dr. Denis Sannikov

Name of the Reviewer: Professor Nikolay A. Gippius

I confirm the absence of any conflict of interest

(Alternatively, Reviewer can formulate a possible conflict)

Date: 25-10-2022

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

Thesis consists of the Introduction, the four Chapters, Summary and Bibliography containing 135 references. It is well structured and illustrated.

The title of dissertation work is relevant of to its actual content, but probably too short and in its present form is too general. All the works of the lab can fit to this title.

The relevance of the methods used in the dissertation is discussed in each chapter. Methods used to obtain reported results are modern and are directly related to the set tasks. They are presented with appropriate details in the text of dissertation.

The scientific significance of the results obtained and their compliance with the international level and current state of the art is proved by the publications in high rank journals (Scientific Report, APL,...) The investigation of the cutting edge materials, their optoelectronic properties and the design of novel techniques to modify such systems can be treated as highly important for modern science and industry.

The results underlying this dissertation are published in high-impact journals directly related to the field of research.

As a minor remark I would note that some notations in the thesis are not coherent, e.g. in (2.1) and it's extended version (5.8-5.13).

To summarize, this a solid work and I recommend this thesis to the 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