



European Research Council  
Executive Agency

Established by the European Commission

Ref. Ares(2016)2025762 - 28/04/2016

ERC/JPB/2016/01

Dear Applicant,

On behalf of the ERC, I thank you very much for your application to the ERC Starting Grant 2016 call.

With close to 3000 applications, the response to this call was high. At the same time, the evaluation panels praise the generally high quality of the proposals they received. This is very encouraging for the ERC and justifies the efforts to address the continuing needs of the scientific community and European society at large.

The pertinent evaluation panel appreciated the opportunity to examine the proposal that you submitted. Its members carefully assessed the individual reviews of your proposal in joint discussion before reaching their decision.

Unfortunately, after thorough consideration, they did not select your application for Step 2 evaluation. I hope however that the comments provided by the panel will be helpful to you for your future research.

With my best wishes for your career,

Yours sincerely,

Professor Jean-Pierre Bourguignon  
President, European Research Council



European  
Commission

Horizon 2020  
European Union funding  
for Research & Innovation

ERC Executive Agency  
Place Rogier 16, COV2 24/009, BE-1049 Brussels, Belgium | Tel: +32 2 295 74 51 | Fax +32 2 297 96 24 |  
rtd-erc@ec.europa.eu <http://erc.europa.eu>

## Step 1 Evaluation Report

### CONFIDENTIAL

<b>Call reference</b>	ERC-2016-STG
<b>Activity</b>	ERC-STG
<b>Funding scheme</b>	ERC-2016-STG
<b>Panel name</b>	PE1 Mathematics
<b>Proposal No.</b>	715588
<b>Acronym</b>	BoundaryPhenomena
<b>Applicant Name</b>	Vesna MANOJLOVIC
<b>Title</b>	Boundary Phenomena in Geometric Function Theory

### EVALUATION CRITERIA

#### Criterion 1 - RESEARCH PROJECT

##### Ground-breaking nature and potential impact of the research project

To what extent does the proposed research address important challenges?

To what extent are the objectives ambitious and beyond the state of the art (e.g. novel concepts and approaches or development across disciplines)?

To what extent is the proposed research high risk/high gain?

Comments:

##### Scientific Approach

To what extent is the outlined scientific approach feasible bearing in mind the extent that the proposed research is high risk/high gain (based on the Extended Synopsis)?

Comments:

#### Criterion 2 - PRINCIPAL INVESTIGATOR

##### Intellectual capacity, creativity and commitment

*The questions below can have one of the following four responses: Outstanding/Excellent/Very good/Non-competitive*

To what extent has the PI demonstrated the ability to propose and conduct ground-breaking research?

To what extent does the PI provide evidence of creative independent thinking?

To what extent have the achievements of the PI typically gone beyond the state of the art?

### PANEL SCORE AND RANKING RANGE

<b>Final panel score :</b> B (is of high quality but not sufficient to pass to Step 2 of the evaluation. Please note that you may also be subject to resubmission limitations in the next call.)	<b>Ranking range*:</b> 54%-63%
--	--------------------------------

\* Ranking range of your proposal out of the proposals evaluated by the panel in Step 1, in percent, from 1% for the highest ranked proposals to 100% for the lowest ranked.

## PANEL COMMENT

This evaluation report contains the final score awarded by the ERC review panel during the first step of the ERC Starting Grant review and the ranking range. The discussion of the panel was conducted within the context of the individual reviews submitted by ERC panel members.

The panel closely examined all the individual review reports and, while not necessarily subscribing to each and every opinion expressed, found that they provide a fair overall assessment. The comments of the individual reviewers were the basis for the discussion and the final recommendation of the panel, and are included in this report.

The PI is proposing a project in geometric function theory. The core problem of the project is the study of boundary functions that admit a quasi-conformal harmonic extension in higher dimensions. One of the interesting aspects of the proposal is the study of the geometry of boundaries of domains that allow such extensions. Overall the project deals with important and deep problems that are related to the Teichmüller theory, theory of harmonic measures, and potential theory. The panel finds this project interesting, but too narrow and too technical in a very specific area of mathematics.

The PI has a very good but not outstanding list of publications.

Overall the panel considers this proposal to be of reasonably good quality. However, based on the combined set of criteria used in the assessment it was not ranked highly enough to be retained for Step 2. The panel therefore recommends that the proposal should not be retained for Step 2 and should not be considered for funding.

## REVIEWER COMMENTS

The following individual reviews have been carried out independently prior to the panel meeting and do not necessarily reflect the panel's final opinion

### Reviewer 1

#### Research Project

Ground-breaking nature and potential impact of the research project

This proposal aims to investigate several topics on geometric methods in mathematical analysis. In particular, the goal is to characterize the boundary functions that have a quasiconformal harmonic extension, and several equivalent definitions of quasiconformity, both of analytical and geometric type, are considered. The project also includes the redaction of a monograph by the PI.

#### Scientific Approach

The project targets at classical subjects as the theory of quasiconformal functions and their harmonic extension, a field in which the PI has worked since her PhD studies. Her international collaborations are essentially limited to the Finnish community, and the project is seen as a way to enlarge the range of scientific relations.

#### Principal Investigator

To what extent has the PI demonstrated the ability to propose and conduct ground-breaking research?	Very good
To what extent does the PI provide evidence of creative independent thinking?	Very good
To what extent have the achievements of the PI typically gone beyond the state of the art?	Very good

#### Comments (Optional for reviewers)

The publication record of the PI is very good, with some papers published in international journals of a very good level. Her training activity is intense.

## Reviewer 2

### Research Project

Ground-breaking nature and potential impact of the research project

The PI is an expert in geometric function theory. Her aim is to characterise boundary functions that allow a quasi-conformal harmonic extension in higher dimensions. The PI is also planning to study geometric properties of boundaries of domains, boundary behaviour of harmonic and quasi-conformal maps with respect to Hölder and Lipschitz continuity and more general moduli of continuity, Möbius invariant Besov spaces, and to extend the deep  $H^p$  theory for quasi-regular maps with bounded multiplicity.

### Scientific Approach

The project is a very interesting part of harmonic analysis, which is a classical subject of function theory. The problems described in the proposal are realistic. The PI has several joint papers with leading researchers from Finland, which has one of the best schools in harmonic analysis. She is also planning to establish collaboration with experts from Japan.

### Principal Investigator

To what extent has the PI demonstrated the ability to propose and conduct ground-breaking research?

Excellent

To what extent does the PI provide evidence of creative independent thinking?

Very good

To what extent have the achievements of the PI typically gone beyond the state of the art?

Excellent

### Comments (Optional for reviewers)

The PI has already proved difficult results which allowed her to establish herself as one of the leading experts in the field.

## Reviewer 3

### Research Project

Ground-breaking nature and potential impact of the research project

The domain of research is here the study of boundary functions which admit a quasi-conformal extension, boundary behavior of quasi conformal maps and quasi regular maps. The problems are interesting in geometric function theory. The questions addressed are precise, but quite narrow and technical. This is a good proposal in a quite specific domain.

### Scientific Approach

The PI has a good experience and knowledge of the research domain and the scientific approach is quite feasible.

### Principal Investigator

To what extent has the PI demonstrated the ability to propose and conduct ground-breaking research?

Excellent

To what extent does the PI provide evidence of creative independent thinking?

Excellent

To what extent have the achievements of the PI typically gone beyond the state of the art?

Excellent

### Comments (Optional for reviewers)

The PI has been high school professor for about 10 years and began her research relatively recently. She has done very good research and she has international recognition.

## Reviewer 4

### Research Project

Ground-breaking nature and potential impact of the research project

The proposal is well written. It is clear what the PI wants to achieve and it is summarized in the eight problems on different topics of geometric function theory. The main goal is to characterize boundary functions that allow a quasiconformal harmonic extension in many dimensions. It would require to study the boundary behavior of quasiconformal and harmonic functions with respect to, in particular, Hölder and Lipschitz continuity. The PI already got a number of valuable results in this field. The problems that she wants to study are mostly generalizations of the results obtained by her and other known mathematicians. She plans to write a number of research papers and a research monograph about quasiconformal theory in higher dimensions. It is a high gain project.

### Scientific Approach

The project is feasible due to the previous successes and deep knowledge of the PI in this field.

### Principal Investigator

To what extent has the PI demonstrated the ability to propose and conduct ground-breaking research?

Excellent

To what extent does the PI provide evidence of creative independent thinking?

Excellent

To what extent have the achievements of the PI typically gone beyond the state of the art?

Excellent

### Comments (Optional for reviewers)

The PI got her PhD in 2008. Today, she is an Associate Research Professor of the Serbian Academy of Science and Arts. She published more than 20 papers and her citation record is excellent.



*Digitally sealed by the European Commission*  
*Date: 2016.04.20 18:11:26 CEST*

This document is digitally sealed. The digital sealing mechanism uniquely binds the document to the modules of the Participant Portal of the European Commission, to the transaction for which it was generated and ensures its integrity and authenticity.

Any attempt to modify the content will lead to a breach of the electronic seal, which can be verified at any time by clicking on the digital seal validation symbol.