

ATTITUDE OF REVIEWER

for Assist. Prof. Dr. Pavlina Khristova Atanasova
in the competition for acquiring
the academic position "Associate Professor"
at the Faculty of Mathematics and Informatics at
University of Plovdiv Paisii Hilendarski
in area of higher education

4. Natural sciences, mathematics and informatics,
professional field

4.5. Mathematics (Computational Mathematics),
published in Newspaper of State, issue 31, April 12, 2019

Prepared by: Prof. Dr. Anton Iliev Iliev

By order P33-3779/12.07.2019 of the Rector of the University of Plovdiv Paisii Hilendarski I was appointed as a member of the Scientific Jury in area of higher education 4. Natural sciences, mathematics and informatics, professional field 4.5. Mathematics (Computational Mathematics).

For the participation in the announced competition for "associate professor" the documents of Assist. Prof. Dr. Pavlina Khristova Atanasova were submitted.

I have received all the required documents for participation in the competition in paper and electronic format.

The candidate has grouped the scientific papers presented in the competition into several thematic areas, structured in the self-assessment of the contributions.

Main Contributions:

A new approach for the study of volt-ampere (I-V) curves, with application to the physics of long Josephson contacts (articles №№3 and 5 in the submitted list of publications for participation in the competition).

The second article is devoted to the analysis of the states in the contact, reaching important conclusions related to the static distributions of the magnetic flux in the contact.

The second group of publications (№№ 4, 6, 7, 8 and 10 of the presented list of publications for participation in the competition) is devoted to the analysis of complex nanostructures. In cases where other layers are added to the Josephson structure, a second harmonic current-phase relationship appears in the description of model. In these cases, the differential equation becomes complicated and goes into the so-called double sine-Gordon equation.

In publications №№7 and 8, the candidate's developments are related to the influence of the second harmonic on the system. The interconnection of the various Meissner's, multifluxon and newly discovered distributions is shown. The properties of the multifluxon solutions of the double sine-Gordon equation are studied depending on the parameter of the second harmonic.

Bifurcation solutions (implemented in the dissertation for the study of symmetric two-layer Josephson contacts) are applied to models of Josephson contacts, in which a second harmonic depends on the current-phase relationship (publications №№6 and 10).

The third group of publications (№№11, 13, 14 and 16 of the submitted list of publications for participation in the competition) complicates the nanostructure which is considered - from a single contact to a stack of Josephson contacts. Inductive and capacitive coupling is added.

Models of Josephson contacts with magnetic impulses have been studied in articles №№18 and 19.

Reference for publications and citations:

The candidate submits 19 scientific publications in the "associate professor" competition, 3 of which are presented for acquiring "assistant professor".

In journals with Impact Factor (total IF: 3.021 - Base of WoS) are published three articles in journals with IF assessments - Q2, Q3 and Q4, respectively, and 9 in journals/editions with SJR.

The candidate has submitted 3 textbooks for participation in the competition (2 of them are issues of University Publishing House "Paisii Hilendarski").

The requirement for the necessary number of papers which are not submitted for the doctorate degree (2011) is fulfilled, which satisfies the requirements within the meaning of the ZRASRB, the Regulations for the implementation of the ZRASRB and the Rules of the "Paisii Hilendarski" for the implementation of the ZRASRB.

The candidate is submitted a list of 12 citations, 7 of which are in IF journals. Total IF: 6.759 and grades Q1 to Q4. In the process of getting acquainted with the

submitted documents, I found that there was a duplication of one of the citations (I suppose, due to variable way of presenting the same elements from the same list by the candidate), so that their real number is 11.

For unknown reasons, the existence of a positive SJR (Scopus) for the relevant year of publications appearing in the Springer Lecture Notes in Computer Science series is not reflected in some places in the application documentation provided by the applicant.

During the preparation of the opinion, I found out that publication of the candidate was also cited in:

R. I. Kuchumov, V. V. Korkhov, Design and Implementation of a Service for Performing HPC Computations in Cloud Environment, Proceedings of the VIII International Conference "Distributed Computing and Grid-technologies in Science and Education" (GRID 2018), Dubna, Moscow region, Russia, September 10–14, 2018, 233–236.

The minimal national requirements for required points by groups of indicators for the academic position of "associate professor" have been fulfilled.

The additional faculty requirements of the FMI at PU for PRAS in RB of FMI at PU for the position of "associate professor" have been fulfilled, namely – at least 5 publications in journals, at least 3 publications in IF (WoS) journals and evidence of at least 5 citations.

I have not found any "plagiarism" in the candidate's work within the meaning of ZRAS in RB.

Assistant Professor P. Atanasova has submitted a report for participation in 17 research and educational projects, for 9 of which she is a leader.

All told so far gives me the conviction to give a positive assessment of the candidate's overall research.

CONCLUSION

It is clear from the findings of the candidate's works presented in the competition that in they are received sufficient scientific and applied contributions in the field of "Numerical Modeling".

From the reports presented, it is clear that the candidate has a very good teaching activity which adds to my conviction that Assistant Professor Pavlina Atanasova meets the requirements of the ZRASRB, the Regulations for the implementation of the ZRASRB, the Rules of the PU "Paisii Hilendarski" for the implementation of the ZRASRB for the acquiring the academic position "Associate Professor".

My conclusion regarding the acquiring of the academic position "Associate Professor" by Assist. Prof. Dr. Pavlina Khristova Atanasova is POSITIVE.

I suggest to the Honorable Scientific Jury unanimously to propose the Faculty Council of the Faculty of Mathematics and Informatics at the University of Plovdiv "Paisii Hilendarski" to choose the candidate Assistant Professor Dr. Pavlina Khristova Atanasova for the academic position "Associate Professor" in the area of higher education 4. Natural sciences, mathematics and informatics, professional field 4.5. Mathematics (Computational Mathematics).

September 2, 2019

Signature:

/Prof. Dr. Anton Iliev/