

SHORT REVIEW

for a competition organized by Sofia University, FMI,
for holding the academic position "ASSOCIATE PROFESSOR"
in Department "Information Technologies" in
PD 4.6. „Informatics and Computer Sciences (Informatics)“,
according to announcement in SG, issue № 32 from 16.04.2021,
with one contestant: **chief assistant Mariana Ilieva Atanasova, PhD**

Reviewer: prof. Pavel Boytchev, FMI, SU,
member of scientific jury of the competition, assigned by order
RD 38-267/14.06.2021 by the Rector of SU „St. Kliment Ohridski“

1. General description of the presented materials

This review on a competition for the academic position of "Associate Professor" was prepared on the basis of Order RD 38-267 / 14.06.2021 of the Rector of Sofia University "St. Kliment Ohridski" (SU) and decision of the scientific jury from 22.06.2021. It is prepared in accordance with the Law on the Development of the Academic Staff in the Republic of Bulgaria (ZRASRB), Regulations for application of ZRASRB, Regulations on the terms and conditions for acquiring scientific degrees and holding academic positions at SU (REGSU), Regulations for the conditions and the procedure for acquiring scientific degrees and for holding academic positions in FMI at SU (REGFMI); and The instructions for the preparation of reviews and short reviews by the members of scientific juries and for the documents in electronic form, submitted by the candidates for procedures for academic positions and scientific degrees of FMI at SU.

The set of materials submitted in electronic format includes: 9 publications; reference for fulfilment of the Minimum national requirements (MNR) and the additional requirements of SU with the corresponding evidence from Web of Science and Scopus; list of all publications; list of publications for the competition and their summaries; report from the system "Authors"; author's contributions report; citations report; teaching and research activities report; recommendation letters from prof. Eliza Stefanova (FMI, SU), assoc. prof. Evgenia Benova (DLS, SU) and dr. Jan-Joseph van der Mullen (Free University of Brussels).

The set also includes the rest of documents required by the REGSU, Art. 108: admission application, CV, higher education diploma №154460 from SU and its appendix; diploma for Doctor of Engineering from the Free University of Brussels (ULB), certificate № U 2014-3 / 28.03.2014 from SU for the recognition of the diploma of educational and scientific degree Doctor of Physical Sciences; certificate № 129 / 28.05.2021 for holding academic positions at SU since 2007, a copy of the announcement in the State Gazette № 32 from 16.04.2021.

As a current employee of SU the provision of medical certificates for physical and mental health, and a criminal record is not required. A document for a scientific title or academic position is not applicable, but the academic positions (senior assistant and chief assistant) are described in the above-mentioned certificate.

The existence of formally proven plagiarism or suspicion of plagiarism in the applicant's scientific papers is not known.

2. Brief biography of the candidate

Mariana Atanasova received her master's degree from the Faculty of Physics (FPh) at SU in 1998, majoring in Physics. In 2012 she became a Doctor of Engineering from ULB, which was recognized by SU as the educational and scientific degree of Doctor of Physical Sciences. The topic of her dissertation is "Modeling of atmospheric pressure argon plasmas: application to capacitive RF and surface microwave discharges" and it is defended in Belgium.

Since 2007 she has been appointed as a senior assistant at SU, and since 2011 she is a senior assistant. Prior to that, she was a specialist in "Information Services" and a part-time lecturer at SU and a specialist at the National Centre for Metrology. From 2009 to 2012 she was a researcher at the Faculty of Applied Sciences at the ULB.

3. Teaching experience of the candidate

Mariana Atanasova graduated with a second master's degree specialty – teacher in Physics. She has been working as a part-time lecturer at SU before her appointment as a senior assistant. After her appointment she participated in teaching activities at FMI, Faculty of Biology (FBio), Faculty of Economics (FEco), FPh and Department of Language Education – Institute for Foreign Students. In the last 5 years she has created the full curriculum of 5 disciplines for bachelors from the FMI and the FBio; she has participated in 7 disciplines in FMI, FBio and FEco. She has experience teaching in bachelor's and master's degrees, as well as in full-time and part-time education. As a research supervisor Mariana Atanasova has 3 successfully defended graduate students.

4. Research experience of the candidate

The full list of scientific publications and achievements of Mariana Atanasova includes: 13 publications in scientific journals (she is the primary author in 8 of them) and 27 papers in conference proceedings (she is the primary author in 11 of them).

Nine of the publications in journals were selected for this competition; 4 of them are referenced in the Web of Science, have IF and quartiles Q1, Q2 and Q3; and the other 5 are referenced in Scopus and have SJR.

She has participated in 1 European project, 3 projects of National Science Fund of the Ministry of Education and Science and 8 projects of SU; 1 plenary report and 3 section reports were presented; she is a member of the editorial board of the Journal of Physics.

5. Main scientific contributions of the candidate

Mariana Atanasova's scientific results are related to the various aspects of plasma. The scientific and theoretical contributions include the creation of models for the behaviour of plasma in high-frequency sources, in particular surface-wave discharge – its propagation, kinetics, dynamics and coherence of its various descriptions (publications B1-2, G3-6); and of a radio-frequency plasma shower – its description and dynamics (publications B1, G1-2).

The applied contributions include the creation of methodologies and theoretical descriptions of high-frequency discharges in general, with specific applications in the radio frequency range – plasma shower and microwave range – surface wave discharge (publications B1-3, G-6) and studies related to the interaction of plasmas with water and their use for biomedical purposes (publications B1, B3).

At first glance, the topics of the publications for the competition are predominantly in the field of Physics, but in their essence, they are interdisciplinary, including elements of

mathematics, informatics and information technologies. The creation of theoretical models and their verification requires skills and experience useful not only for professional field 4.1, but are inherent for professional field 4.6, as well as for the whole field of higher education "4. Natural sciences, mathematics and informatics".

What remains undemonstrated in the publications is the software created by Mariana Atanasova and her team (mentioned in B1), with which the proposed models are implemented, executed and tested. In this context, the created models are not only theoretical mathematical models, but are implemented and verified by software.

6. Impact of the candidate's results on the works of other authors

A list of 37 citations is provided, with №32 duplicating №30. Seven of these citations are used for the current competition. Over 80% of all citations are from publications in journals and proceedings referenced and indexed in Web of Science or Scopus. It makes a good impression that 4 of the citations are from PhD dissertations, which shows the contribution to supporting the next generation of scientists. All citations are from teams of entirely or mainly foreign scientists and researchers.

7. Personal opinion about the candidate

As a head of the Department of Information Technology, my personal impression of the teaching and administrative activities of Mariana Atanasova is excellent. She participates actively in all activities of the department. She fulfils and overfulfills the teaching load quota. All disciplines, she has taught in recent years as a member of the Department of Information Technology, are in the fields of Computer Sciences and Information Technologies.

8. Critical remarks

Strengthening the research and publication activity in areas more directly related to Computer Sciences, Information Technologies and Education; as well as participating in author teams with faculty members from the department and the faculty.

9. Conclusion

Taking into account the documents submitted online by Mariana Atanasova for the competition for associate professor, I consider as fulfilled the requirements of the relevant laws and regulations. There is one exception to the REGFMI (in force since June 26, 2017). In Art. 5 (2) of the regulations it is stated that in the absence of habilitation work for associate professor at least 10 publications are required. The provided set of documents has 9 publications. All other requirements (number of publications in peer-reviewed international publications, number of citations, recommendation, developed teaching materials, supervising graduates, teaching experience) are fulfilled, and also the MNR for "associate professor" are fulfilled. There are sufficient other publications in the general list of publications that could compensate. Regardless of the omission, a significant part of the requirements in Art. 5 and from the additional requirements in art. 6 are not only fulfilled but also overfulfilled. I also consider the publications in journals with IF in high quartiles, supervising graduates, conducting CS and IT courses in various faculties of SU, creating new and updating existing disciplines.

The topics of the publications presented for review are of interdisciplinary nature, showing sufficient experience and skills for scientific work at the level of "associate professor". There is a reorientation of the activities of Mariana Atanasova, as in the beginning her academic

portfolio included elements of the Physical Sciences, but through the intensified teaching and teaching activity in recent years there is a reorientation to Computer Sciences.

My overall assessment of the teaching, research and administrative activities of chief assistant Mariana Atanasova is positive. The achieved results give me grounds to recommend to the respected members of the scientific jury and to the Faculty Council of FMI at SU to award of the academic position "Associate Professor" in the professional field 4.6. "Informatics and Computer Science" (Informatics) to Mariana Atanasova.

Sofia, 10.VIII.2021

Reviewer:

/ prof. Pavel Boytchev /