

EVALUATION REPORT
on a competition for an academic position
"Associate Professor"
in professional field 4.6. Informatics and Computer Sciences,
for the needs of Sofia University "St. Kliment Ohridski" (SU),
Faculty of Mathematics and Informatics (FMI),
announced in SG No. 32/16.04.2021 and on the websites of the FMI and SU

The opinion was prepared by: Assoc. Prof. Hristo Tsvetanov Tarnev, DSc, Technical University of Sofia, in my capacity as a member of the scientific jury in a competition for the academic position of "Associate Professor" in the professional field 4.6. Informatics and Computer Sciences according to Order № RD 38-267 / 14.06.2021 of the Rector of Sofia University

Only one candidate has submitted documents for participation in the announced competition: Dr. Mariana Ilieva Atanasova (Pencheva) from FMI of Sofia University.

I. General description of the submitted materials

For each of the candidates, information is given under points 1 to 8:

1. Application details

The documents submitted for the competition by the candidate comply with the requirements of ZRASRB, PPZRASRB and the Regulations on the terms and conditions for acquiring scientific degrees and holding academic positions at Sofia University "St. Kliment Ohridski" (PURPNSZADSU).

For participation in the competition the candidate Senior Assistant Professor Dr. Mariana Atanasova presented a list of a total of 9 titles, including 4 publications in scientific journals with impact factor IF and 5 publications in scientific journals with impact rank SJR. Other documents supporting the candidate's achievements are also presented, such as diplomas, internship certificates, lists of publications, scientific contributions, etc.

The set of submitted documents is complete, well-structured and organized.

2. Details of the applicant

The candidate Senior Assistant Professor Mariana Atanasova, PhD, completed her master's degree in 1998 at Sofia University "St. Kliment Ohridski". She defended her PhD thesis in 2012 at the

Free University of Brussels, Department of Applied Sciences, Brussels, Belgium. Her teaching work began in 2003, initially at the Department of Language Training - ICS of Sofia University "St. Kliment Ohridski", and after 2017 at the Faculty of Mathematics and Informatics at Sofia University "St. Kliment Ohridski".

The candidate has significant international experience, specializing at the Department of Physical Electronics, Masaryk University, Brno, Czech Republic, in the frame of the Central European Exchange Program for University Studies (CEEPUS II), 2009; Research work on the project for interuniversity cooperation Interuniversity Attraction Poles (IAPs), Phase VI, Belgium, Brussels, Free University of Brussels, Faculty of Applied Sciences, 2009–2012; Research work on the project COST Association, TD1208: Electrical Discharges with Liquids for Future Applications, 2013–2017.

The total number of scientific publications of Dr. Mariana Atanasova is 40, of which 17 are in Scopus/Web of Science refereed journals and 13 of them are in journals with impact factor or impact rank. The total number of citations is 37, the h index is 4.

3. General characteristics of the candidate's scientific works and achievements

All scientific papers submitted for the competition have been published in Scopus or Web of Science refereed journals. The formal requirements for the indicator groups have been exceeded. For Group B, 120 points have been submitted against a requirement of 100, for Group G 270 points against a requirement of 200 and for Group D 56 points against a requirement of 50.

The scientific papers submitted by the candidate do not repeat those from previous procedures for obtaining a scientific degree and an academic position. There is no legally proven plagiarism in the scientific papers submitted for the competition.

4. Characteristics and evaluation of the candidate's teaching activity

According to the submitted documents, the teaching work of Dr. Mariana Atanasova can be divided into two parts. In the period of time 2003-2017 she has taught Physics and Computer Skills (Word, Excel, Access, C++ basics) to foreign students in Bulgarian and English at the ICS, and after 2017 she has taught Information Systems and Technologies, Computer Networks, R programming basics at the FMI.

5. Content analysis of the scientific and scientific-applied achievements of the candidate contained in the materials for participation in the competition

The publications presented by the candidate are in the field of computer modeling of gas discharges and plasma. Atmospheric pressure discharges are modeled. These discharges have been the subject of intensive research in recent years, as they are considered to be particularly promising for many technological applications. Their main advantage is the lack of vacuum installation, which significantly reduces the cost of equipment.

Computer modeling of gas discharges is a very extensive scientific field, covering different parts of physics, numerical methods and programming. In this regard, the competence demonstrated by the candidate and the breadth of knowledge in various aspects of computer modeling of gas discharges make a very good impression. The models include several basic types of discharges (surface waves, capacitive, plasma jets) operating in different frequency ranges (high frequency, microwave). In some of the models it is necessary to solve the equations of the electrodynamic and gas-discharge part of the model in a self-consistent manner. A collisional-radiative model for the processes in argon plasma has been developed, and at the same time the Boltzmann equation for determining the electron energy distribution function has been solved. In addition to their own codes, the models also use specialized software such as Bolsig + and PLASIMO. The research also includes some interesting new applications in biomedicine and the plasma-water interaction.

The significance of the obtained results is confirmed by their publication in reputed journals from Q1 and Q2, as well as by 37 citations.

6. Critical remarks and recommendations

I have no critical remarks and recommendations.

7. Personal impressions of the candidate

I know Dr. Mariana Atanasova for over 20 years. I highly appreciate her professionalism, erudition and competence shown in her research. In her relations with people she is honest and kind, communication with her is easy.

8. Conclusion on the application

After getting acquainted with the materials and scientific works presented in the competition and based on the analysis of their significance and the scientific and scientific-applied contributions contained in them, **I confirm** that the scientific achievements meet the requirements of ZRASRB, the Regulations for its application and the relevant Regulations of Sofia University "St. Kliment Ohridski" for holding the candidate for the academic position "Associate Professor" in the scientific and professional field of the competition. In particular, the candidate satisfies the minimum national requirements in the professional field and no plagiarism has been found in the scientific papers submitted at the competition.

I give my **positive** assessment of the candidacy.

II. GENERAL CONCLUSION

On the basis of the above, **I recommend** the scientific jury to propose to the competent body for the selection of the Faculty of Mathematics and Informatics at the Sofia University "St. Kliment

Ohridski" to elect Dr. Mariana Ilieva Atanasova to take the academic position of Associate Professor in the professional field 4.6. Informatics and Computer Science.

26.07.2021.

Reviewer:

(Assoc. Prof. Hristo Tarnev, DSc)