

REFeree STATEMENT

On a competition for academic position Associate Professor in the professional field

**4.6 Informatics and computer science for need of Sofia University “St. Kl. Ohridski”,
announced in Government Bulletin no 32 from 16/04/2021**

Statement from: *Assoc. Prof. Dr. Tsvetelina Paunsk*

In the current competition for Academic rank **Associate Professor** only one application has been submitted to the Head Assistant Professor Dr. Mariana Ilieva Atanasova. The open position is in the Faculty of Mathematics and Informatics.

Mariana Atanasova completed her university education in Faculty of Physics at Sofia University in 1998. She received a Master's degree with specialization “Optics and spectroscopy”. In 2012, she successfully defended the PhD thesis “*Modelling of argon plasma at atmospheric pressure – application of high frequency capacitive and microwave surface wave discharges*” at the Brussel Free University in Belgium. Mariana Atanasova's entire career has been in the field of science and education, and since 2013 she has held the position of Head Assistant Professor at Sofia University, firstly in the Department of Foreign Language Teaching and then continues her work at the Faculty of Mathematics and Informatics.

Mrs. Atanasova's interests of the science are on the area of Plasma physics and gas discharges. She is a specialist in the numerical modelling of gas discharges at atmospheric pressure. The model presented in the papers B1, G3, G4 and G5 is on a surface wave discharge. It is the full (self-consistent) model of the discharge and the wave which creates the plasma. In the model the local dispersion equation of the wave, the energy-wave and electron balance equations as well as the kinetic Boltzmann equation are solved. Solving the Boltzmann equation is one of the biggest challenges in the numerical modeling of the low-temperature plasma. It is noteworthy that the model uses the solver *Sofie* developed by the Group in Sofia, in which Dr. Atanasova works. The plasma dynamics is threated with software package PLASIMO developed at the Eindhoven University of Technology. In the paper B2 is presented a kinetic model of argon plasma at atmospheric pressure with 87 chemical reactions. This investigation is valuable because the chemical model can be used from another model of different discharges. Articles B1, G1 and G2 are also on model but of radio frequency capacitive discharge – plasma shower. This device is applicable for treatment of biological objects at low temperatures. Work B3 is also related at bio and medical applications in which the plasma-water interaction is theoretically and experimentally studied.

In conclusion from scientific documents submitted for the competition I think that Mariana Atanasova has interdisciplinary competencies in the plasma physics, the numerical methods and the programming, working with specialized software and more. The number and the quality of the papers, taking into account the coefficient of the professional field **4.6 Informatics and computer science** are completely sufficient.

The active participation of the candidate of National and International scientific contracts is impressive. She has the collaboration with Bulgarian and foreign scientists which demonstrable of her teamwork skills and is an assessment of the candidate's work. From the attached recommendations of Assoc. Prof. E. Benova, Prof. E. Stefanova and Prof. J-J van der Mullen I am aware that Mariana Atanasova is a hard-working, proactive researcher with a significant contribution to the publications submitted for the competition.

The teaching duties of the candidate are diverse. For the last 5 years she has been teaching disciplines in the field of information technologies: "Information Systems and Technologies", "Mathematics and Informatics", "Operating Systems and Office Applications", "Office Technologies" and "Operating Systems and Computer Networks in school".

The presented results, the achieved research experience and teaching activity of Head Assistant Professor Mariana Atanasova completely satisfy the requirements of the Bulgarian Government Low for Academic Ranks and the Sofia University rules for academic staff. Therefore, I propose to the jury to award Dr. Atanasova the title of **Associate Professor** in professional field 4.6. Informatics and computer science. I hope that the council of the Faculty of Mathematics and Informatics will approve this candidate.

08 July 2021

Statement prepared by:

/Assoc. Prof. Dr. Tsvetelina Paunskva/