

STATEMENT OF ACADEMIC OPINION

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Regarding : the competition for the academic position " **PROFESSOR** " in the field of higher education **5. Technical Sciences** , professional field **5.2. Electrical Engineering, Electronics and Automation**, specialty "**High-voltage Technology**" , for the needs of the Department "Medical Equipment, Electronic and Information Technologies in Healthcare", Faculty of "Public Health" at the Medical University "Prof. Dr. Paraskev Stoyanov" - Varna, according to a competition announced in State Gazette No. 7/23.01.2024.

I have been elected as the Chairman of the Scientific Jury, according to order No. R-109-95 / 21.03.2024 of the Rector of the University of Varna, for the competition announced in the State Gazette number 7 of 23.01.2024 regarding the academic position of "**Professor**" with candidate **Margreta Parashkevanova Vasileva** in the field of higher education **5. Technical Sciences**, professional field **5.2. Electrical Engineering, Electronics and Automation**, and the specialty "**High-voltage Technology**". During the first meeting of the Scientific Jury on 04/01/2024, I have been assigned to prepare a statement of academic opinion.

The candidate Associate Professor Margreta Vasileva, PhD, has submitted all the necessary documents. All requirements of the Law on the Development of the Academic Staff in the Republic of Bulgaria and the Regulations for Obtaining Scientific Academic Degrees and Occupying Academic Positions at the Medical University - Varna have been met.

Brief Biographical Details of the Candidate

Associate Professor Margreta Parashkevanova Vasileva was born on February 11, 1963 in the city of Veliko Tarnovo. In 1987, she graduated from Higher Institute of Mechanical and Electrical Engineering in Varna, specializing in the field of electrical engineering. From 1995 to 2019, she worked at the Technical University of Varna, where she academically developed from assistant to associate professor. There, she held leadership positions, such as Deputy Dean for Academic Affairs at the Faculty of Electrical Engineering and Deputy Rector for Academic Affairs. From 2019 onwards, she continues her professional career at the Medical University in Varna, where she is the head of the engineering department of *Medical Equipment, Electronic and Information Technologies in Healthcare*. She has over 28 years of experience in the field of Electrical Power Engineering.

Scientific Research Activity and Scientific Metrics

Associate Professor Margreta Vasileva is a candidate for the academic position of "**Professor**", presenting a total of 33 scientific publications and one full-text publication beyond the minimum scientometric requirements (a total of 34), which are not duplicated with her publications for obtaining the PhD degree. Of these publications, 15 are included in the Scopus scientific database. In this set of publications, Assoc. Prof. Vasileva is the first author of 9 publications, the second author of 3 and the third and fourth authors of another 3. 31 authors have cited these publications, of which 9 are foreign authors.

In the remaining 19 publications, which are not referenced in the Scopus or Web of Science, Assoc. Prof. Vasileva is the first author of 7, second of 6, third of 4, and in 2 cases she is the last co-author. Out of the total number of 34 publications presented, one was published in a journal. All these publications are closely related to the professional expertise of Assoc. Prof. Vasileva and to the specific field of the announced competition.

Over the years, she has participated in 23 scientific forums, presenting reports in Bulgarian and English. Of these forums, 6 were abroad. All participations in scientific forums are in the field of her professional career and expertise.

From the data presented in the academic report of Assoc. Prof. Vasileva and summarized in Table 1, it is clear that her scientific output fully meets the requirements and even in some aspects exceeds the criteria of the Minimum Scientific Metrics Requirements for holding the position of "**Professor**" at Medical University of Varna.

Table 1. Scientific Metrics of Assoc. Prof. Margreta Vasileva.

Indicators	Minimum Scientific Metrics Requirements	Academic achievements of the candidate
Group A	50	50
Group B	100	195
Group C	200	238.35
Group D	100	170
Group E	150	203.34
Total	600	856.69

In the competition for the academic position "**Professor**", for Group D, Assoc. Prof. Vasileva presented the citations of two of her publications, in which she is the first and second author, respectively. They are cited in 17 publications, of which publications by Bulgarian researchers

predominate. However, the statistics in the Scopus database shows that Prof. Vasileva has sufficient citations of her other publications by foreign authors, which demonstrates the interest of foreign research teams in her research field.

Associate Professor Vasileva is an active participant in academic life, distinguishing herself with active leadership of students and doctoral students. She has successfully supervised 26 graduate students and was the supervisor of five PhD students, three of whom successfully defended their dissertations. In addition, Assoc. Prof. Vasileva is active in her participation in university educational projects. She led an infrastructure project under the "Science Fund", related to the construction of a management information system of a faculty in a higher education organisation in Bulgaria. The project ended with the successful implementation of the information system and a fully equipped room, dedicated for the needs of the Department of *Medical Equipment, Electronic and Information Technologies in Healthcare*.

Teaching Activity

Since 2016, Associate Professor Vasileva has participated in a total of 15 juries for scientific degrees and academic positions, as summarized in Table 2. This highlights her active participation in the academic life and her contribution to the evaluation and development of the scientific community.

Table 2. Participation in juries for scientific degrees and academic positions.

Participation in the jury for:	Number of entries
Doctor	4
Ch. Assistant	4
Docent	6
Professor	1

In the competition for "**Professor**" Associate Professor Vasileva participated with 4 university manuals: a textbook on *Electrotechnical Materials* and *Materials and Components of Computer Technology*, published by the Medical University of Varna, and two manuals related to laboratory exercises and tests on electrotechnical materials, published by Technical University of Varna. She is the Chairman of the State Examination Committee for the specialty "Information Technology in Healthcare" in MU-Varna for the academic years 2022 and 2023. Assoc. Prof. Vasileva is a leading lecturer for the disciplines *Technologies of High voltages*, *High-voltage Technology*, *High-voltage Technology in Medicine*, *Electrotechnical Materials*, *Technical Safety*, *Sanitary Technology*. These initiatives further highlight her significant contribution to the development of the specialty in which she is a candidate for the academic position of "**Professor**".

Scientific, Scientific-Applied and Applied Contributions

I accept the contributions of Prof. Vasileva, which are well summarised in four thematic areas.

The contributions in Topic Area 1 **Modeling studies of occurrence and limitation of overvoltages in electrical systems** are relevant for the development of the energy sector. This research includes the development of three-phase simulation models of electrical systems and research on the protective characteristics and energy resilience of surge protection devices. The simulation models developed in the Matlab Simulink programming environment are an important tool for training students and increasing the qualification of personnel in the energy sector, providing an opportunity to visualize and understand the complex processes in power systems.

The contributions in Topic Area 2 **Study of wave processes in grounding installations of electric power facilities** are relevant for electrical safety. The created simulation model in Matlab Simulink allows investigating the processes in the grounding installations under different lightning current impact scenarios. These studies provide important information for the design of grounding systems and optimization of parameters to ensure electrical safety. Furthermore, dependencies are derived for determining soil characteristics, which is essential for determining the electrical characteristics of grounding systems.

The contributions in Topic Area 3 **Electrical safety in power systems** are related to new simulation models and computer programs for improving electrical safety. These models and programs enable a more precise analysis of the risks of electrical hazards such as lightning and fault currents, which is essential for improving the security of power systems. The evaluation of wind farm protection effectiveness and compliance with regulatory standards highlights the importance of these studies for the development of the energy sector and for the safety of workers and equipment.

In Topic Area 4 **Modelling Studies of Processes in Electrical Equipment**, the contributions are related to new simulation models and the derivation of useful conclusions that support the understanding and optimization of the operation of various electrical systems and devices. The developed simulation models in the Matlab Simulink program environment allow the analysis of various aspects of the operation of electrical equipment under various load and stress conditions. The development of replacement schemes for the study of thermal processes and determination of parameters for current measuring transformers further reinforces the importance of these studies for the development and improvement of power systems.

Conclusion

Associate Professor Margreta Vasileva is an established lecturer in her field, under whose guidance the successful accreditation of the Department of *Medical Devices, Electronics, and*

Information Technologies in Healthcare for training engineers in the field of Biomedical Engineering and Technologies was achieved. This is the **first engineering department in a medical university in Bulgaria**, and this presents is a significant contribution to the development of Biomedical Engineering education in our country. In this way, Prof. Vasileva made a significant contribution to the development of the specialty, which is unique for Bulgaria, by creating opportunities for career development of young lecturers in the department and realization of the first bachelors in Biomedical Engineering in Bulgaria.

The analysis of the scientific and teaching-pedagogical activity of Assoc. Prof. Margreta Vasileva based on the provided documents, shows that she possesses the necessary teaching and research quality. She fulfills all the requirements set by the Law for the Development of the Academic Staff in the Republic of Bulgaria and its implementing regulations at the Medical University of Varna for the position of "**Professor**". This gives me grounds to give a positive evaluation and confidently recommend Assoc. Prof. Vasileva for the academic position of "**Professor**" in professional field 5.2. Electrical Engineering, Electronics and Automation, specialty "**High-voltage Technology**".

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Prepared by:

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(Prof. Eng. Kristina Bliznakova, PhD)