Evaluation statement
by Prof. Dr. Vencislav Cekov Valchev,
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on the materials submitted for participation in the competition for obtaining the academic position "Associate Professor" in field - 5 "Technical sciences", in the professional field - 5.2 "Electrical engineering, electronics and automation" (Electrification), at the Center for Informatics and Technical Sciences of Burgas Free University

For the competition for the academic position of "Associate Professor", announced in the State Gazette, issue 80 of 16.10.2015, under Art. 67, paragraf. 1, item 1 of the Labor Code for full-time associate professor in the professional field-5.2 Electrical Engineering, Electronics and Automation (Electrification), there is a single candidate - Ch. Assistant Professor Eng. Daniela Zhekova Mareva PhD.

The basis for this evaluation statement is: Order № UMO 172 / 01.09.2021. of the Rector of Burgas Free University and decision of the scientific jury from 10.09.2021

The Evaluation statement is prepared in accordance with the Law for the Development of the Academic Staff in the Republic of Bulgaria, the Regulations for implementation of the Law for the Development of the Academic Staff in the Republic of Bulgaria and according to the general requirements of BFU.

1. General characteristics of the candidate's research and applied research activity

Scientific publications that are referenced and indexed in world-renown scientific databases - 4 publications in co-authorship: 1 with three coauthors and 3 with four coauthors;

Scientific publication in unreferenced journals with scientific review or in edited collective works - 18 publications in different number of authors: 7 independent, 4 with two authors, 6 with three authors, 1 with four authors.

For the competition for the academic position of "associate professor" 29 scientific papers are presented, which are distributed as follows:

- Habilitation work - monograph;
- Scientific publication in publications that are referenced and indexed in world-renowned databases with scientific information;
- Scientific publication in unreferred journals with scientific review or in edited collective works;
- Citations or reviews in scientific journals referenced and indexed in world-famous databases with scientific information or in monographs and collective volumes SCOPUS.

Of the presented scientific papers, 7 publications and one textbook are independent.

Scientific publication in publications that are referenced and indexed in world-renowned databases with scientific information - 4 publications with different numbers of authors: 1 with three authors and 3 with four authors;

Scientific publication in unreferred journals with scientific review or in edited collective works - 18 publications with different number of authors: 7 independent, 4 with two authors, 6 with three authors, 1 with four authors.

Of the cited publications, 9 are indexed in the Scopus database with 13 citations and h factor 2.

Ch. Assistant Professor Daniela Mareva, PhD, has participated in 5 research projects, one of which she was the leader of.

2. Evaluation of the pedagogical preparation and activity of the candidate

I have known ch. Assistant Professor Daniela Mareva, PhD, as a doctoral student and from our joint research activity. I have excellent impressions of her work as a lecturer in the disciplines led by her. I know that students also rate her highly in surveys.

Ch. Assistant Professor Daniela Mareva, PhD, graduated from VMEI-Varna / TU-Varna, Master's degree in 1999 - specialty "Electronic Engineering and Microelectronics". In 2016, she acquired the educational scientific degree "Doctor" at the Technical University of Varna - Faculty of Computer Science and Automation in the professional field 5.2. "Electrical Engineering, Electronics and Automation" specialty "Power Electronics". The topic of her dissertation is "Inverter for induction heating of fluids". During the period 2001 to 2016 the candidate has held the academic position of "Assistant", and since 2016 until present, the academic position of "Chief Assistant" at CITN Burgas Free University. Her teaching activities include laboratory and seminar exercises and lectures in 14 disciplines, which are listed in the submitted documents. She is the author and co-author of 6 textbooks-teaching aids. She is a holder of the following disciplines:

- "Power supply devices" - bachelor 3rd year;
- "Electronic Circuitry" - Bachelor 2nd year;
- "Power electronic converters" - bachelor 3rd year;
- "Lighting and installation equipment" - bachelor 4th year;
- "Engineering equipment of hotels and restaurants" - bachelor 3rd year;

Under her tutorship, 23 graduates successfully defended their diploma theses.

The long and varied teaching work and the wide range of topics in the individual disciplines is a proof of the high professional and pedagogical experience of the candidate for associate professor Ch. Assistant Professor Eng. Daniela Mareva PhD.

3. Main scientific and scientific-applied contributions of the candidate

I am coauthor in 4 publications with Eng. Daniela Mareva PhD. I highly appreciate Mareva's participation in these publications, but I will not review them in the context of the current evaluation statement.

In the monographic work there are 6 scientific topics of research developed solely by the author or in a team. The topics are aimed at inverters for welding sources. Each topic provides results that lead to some improvement in the quality of welding, those include:

- Improved electronic blocks are proposed in introduced.
- Methods and topologies for improved the switching characteristics of the converters are presented.
- Equations for calculation of different elements that influence wielding performance are provided.
- Improvement in performance for the studied devices and processes can be seen from the conclusions.

In the other publications the research work of Dr. Mareva can be defined in 3 main directions:

- Power electronic converters for induction heating [P3, P11, P12, P13]. Those include: Detailed studies and analysis on inductors for heating fluids and inverter sources for heating inductors. Modeling, simulation and approaches for designing water heaters.

- Driver circuits for LED light sources [P2, P7]. Different LED sources have been simulated and experimentally studied and compared in order to improve their energy and light indicators.

- Inverters for welding units [P1, P4, P5, P6, P10, P16, P17]. The ways for regulating the parameters of current pulses through a certain (additional) current source in pulse-arc welding for a welding inverter with improved parameters have been improved.

The mode of operation of the inverter and respectively the load of the semiconductor elements in different emergency situations is provided, as well as a solution for reducing the stress in emergency situations is proposed.

The choice of topology, components and the way of regulation improve the operation of multi-station welding units.

Most of the proposed topologies specifically emphasize on improvements related to the energy efficiency of units and devices.

In conclusion, the contributions can be related to improvements in the principle of operation and way of regulating the power converters and reflect a significant contribution to the achieved results.

4. Significance of contributions to science and practice

Her scientific papers and articles have become available to a wide range of publications through publishing on the platforms of researchgate.net and Scopus Preview. Evidence of this are the citations of 6 of her papers presented in the competition. The total h factor for the Scopus cited in the Scientific Journal is 2.

I evaluate the scientific contributions of Eng. Daniela Mareva PhD as applied science and applicable in practice. These contributions lead to: enrichment of knowledge, formulation of innovative methods for analysis and synthesis to obtain positive results in the development and operation of power electronic converters of electricity.

I accept the contributions of the candidate Ch. Assistant Professor. Eng. Daniela Zhekova Mareva PhD as sufficient to hold the academic position of "Associate Professor".

5. Critical remarks and recommendations

I have no serious objections to the materials provided to me.

I note some recommendations for the candidate:

- To focus her research work in a narrower area to achieve concrete applied results in the light of the global energy crisis.

- To try to intensify her public activity in the prestigious international magazines and conferences abroad.

Conclusion

The materials presented for my opinion (scientific publications, teaching aids and practical activities) for participation in the competition meet the scientometric requirements set out in the Academic Staff Development Act and the regulations of the Burgas Free University for the acquisition of the academic position of Associate Professor. The materials proposed in the competition show that Ch. Assistant Professor Eng. Mareva PhD has performed the necessary teaching and research work.

Having in mind the above, I propose Ch. Assistant Professor Eng. Daniela Zhekova Mareva PhD to be elected for the academic position of "Associate Professor" in the scientific field of Technical Sciences - professional field 5.2. "Electrical Engineering, Electronics and Automation" scientific specialty "Electronization" at Burgas Free University.

Date: 28,10.2021г. :.....

Burgas (Prof. Ventsislav Valchev)