

OPINION

regarding a competition for an academic position „Associated Professor“
in a professional direction 5.2 „Electrical engineering, electronics and automation“,
scientific specialty "Electrical apparatuses",
school discipline "Electrical apparatuses“,
announced in SN issue 40/ 31.05.2022
with a candidate Assistant Professor PhD Eng. Tatyana Marinova Dimova
Member of the scientific jury Associated Professor PhD Eng. Mariyana Georgieva
Todorova



The candidate in the contest Tatyana Marinova Dimova, assistant professor, Ph.D., works in the Department of Electrical Engineering and Electro technologies, Faculty of Electrical Engineering, TU - Varna. She has been appointed as an assistant in the "Electrical Apparatuses" discipline at TU-Varna since 2007, and since 2016 is a principal assistant. Tatyana Dimova's thesis for the award of the science degree PhD is on the doctoral program "Electrical machines and apparatuses" and is on the topic "Modeling of permanent magnets separators".

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

The general evaluation of the research and scientific-applied activity of assistant professor Tatyana Dimova can be classified as very good. It is in the field of electrical apparatuses and related technological processes, and covers the following directions: research of permanent magnets separating devices for separating ferromagnetic particles; modeling and analysis of the separation process with permanent magnets, etc.

These directions coincide with the professional direction and academic discipline of the announced competition and with the directions of development of the "Electrical Engineering and Electro technologies" department of TU-Varna. This activity is proven by many publications, participation in projects, management of graduates, and that after receiving the educational and scientific degree PhD.

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

Assistant Professor Tatyana Dimova, PhD, has 15 years of professional experience at TU-Varna. For the period 2018-2022, she gave lectures on 8 disciplines in the "Bachelor's" degree (including the "Electrical Apparatuses" discipline) and 3 disciplines in the "Master's" degree, related to the announced competition. She supervised 21 Bachelor's graduates and 15 Master's graduates. Under her guidance, 16 students have prepared papers for the Student Scientific Session.

Under the leadership and with the personal participation of Tatyana Dimova, 13 stands were developed with donations from external companies, and another 5 stands for laboratory work were modernized and put into use. With the help of the laboratory stands, the training of the students of 9 specialties of the bachelor's College and the master's College is carried out.

For the period Tatyana Dimova has one international specialization.

In my opinion, the overall assessment of the candidate for this type of activity is very good. The pedagogical activity of the candidate is directly related to the professional direction of the announced competition.

3. Basic scientific and scientific-applied contributions.

The candidate's contributions are scientific, scientific-applied and applied and they are divided into three groups.

The first group of contributions – scientific contributions, can be systematized in the following areas:

- Synthesis of 2D and 3D computer models to study the magnetic field and the influence of design parameters and characteristics of the separated products on the degree of purification with separators of different constructions - **B.4.1., B.4.2., B.4.4., B.4.5., B.4.7.**
- Mathematical models for the study of magnetic fields in the device of different designs of permanent magnets separators - **B.4.1., B.4.7., B.4.8., B.4.9.**
- Experimental study of specific characteristics related to the factors that influence separation devices and the separation process - **B.4.5., B.4.6., B.4.3., B.4.7., B.4.9., B.4.10.**

The second group – scientific and applied contributions, can be systematized in the following areas:

- Development of experimental devices to study specific characteristics and processes related to permanent magnet separators - **B.4.1., B.4.4., B.4.5., B.4.8., B.4.10.**
- Determination of dependencies between the arrangement of the magnetic system, the distribution of the magnetic field, the magnetic force that is sufficient to separate ferromagnetic impurities from non-magnetic and some design parameters - **B.4.1., B.4.2., B.4.3., B.4.9., B.4.8., B.4.10.**
- Experimental determination of the dependences of the magnetic force, flow rate, product movement speed, temperature and the degree of purification of the separated material - **B.4.2., B.4.3., B.4.6., B.4.10.**
- Application of a new methodology for the analysis and design of separators with a specific design and nominal parameters, as a result of which several devices of separators with permanent magnets have been implemented and reconstructed in practice - **B.4.3., B.4.6., B.4.8., B.4.9., B.4.10.**

The third group of contributions are "Application and Implementation Contributions". The results of the conducted research on separators were applied by the company "Elika Proceeding" OOD - Silistra, which is a manufacturer of magnetic separators.

In my opinion, the contributions are the personal work of the candidate, since he is the first author of all the publications, and of one of them he is the sole author. Along with the three groups of contributions, there are also methodological contributions related to student learning.

4. Significance of contributions for science and practice.

The candidate's contributions from scientific works are significant and are in the field of electrical apparatuses. The candidate is known through his publications in Bulgaria and abroad:

- Scientific publications in publications that are referenced and indexed in world-famous databases with scientific information, equivalent to a monographic work - 10 items, all of which he is the first author, 1 item. independently.
- Scientific publication in publications that are referenced and indexed in world-famous databases with scientific information, not equal to a monographic work - 10 items, of which 3 items independently.
- Scientific publications in non-refereed journals with scientific review or in edited collective volumes - 5 nos., in 3 nos. of them first author.

Citations of the results of scientific articles on the topic of separation so far in Scopus are more than 20, and outside Scopus are more than 26, and this number does not include self-citations.

During the period 2011 – 2022 Tatyana Marinova Dimova, assistant professor, Ph.D., has participated in 13 research projects, specifically financed by the state budget (of which she is the head of 1).

5. 5. Critical notes and recommendations.

The candidate has scientific potential, which is why I recommend preparing publications with an impact factor for his future work.

CONCLUSION

The documents for the competition are very well arranged and formatted. They are accompanied by evidentiary material. For about five years after defending a thesis for the ONS "Doctor", Ch. Tatyana Dimova, assistant professor, Ph.D., Eng., has managed to reach the quantitative indicators of the Regulations for the Development of the Academic Staff of TU-Varna for occupying the Academic position "Associate Professor". The work performed is entirely the responsibility of the applicant. Based on my detailed familiarization with the candidate's materials, I conclude that they fully meet the requirements of the Law on the Development of the Academic Staff in the Republic of Bulgaria, the Regulations for the Application of ZRASRB, the Regulations for the Development of the Academic Staff of TU - Varna. My overall assessment of the candidate's scientific works is very high. The candidate has significant scientific, scientific and applied contributions in the field of electrical apparatuses. They are reflected in 25 publications (10 equivalent to a monographic work and 15 outside this group). The candidate has participated in a total of 13 research projects.

Based on the acquaintance with the presented scientific works, their importance, the scientific, scientific-applied and applied contributions contained in them, I find it reasonable to propose Tatiana Marinova Dimova to occupy the academic position "Docent" in professional direction 5.2 "Electrical engineering, electronics and automation ", scientific specialty "Electrical devices"

14.11.2022

MEMBER OF THE JUI

/Assoc. Prof. PhD Eng. M. Todorova/

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