

OPINION

By Prof. Dr. Valentina Ilieva Markova, Technical University - Varna

On the materials presented for participation in the competition for the academic position of "Associate Professor" field of higher education – 5, Technical Sciences, professional field – 5.3, Communication and Computer technology, scientific specialty – "Artificial Intelligence Systems."

In the competition for Associate Professor, announced in the State Gazette, issue 70/20.08.2024, for the needs of the Department of Computer Technologies and Systems at the Faculty of Technical Sciences, the candidate is Chief Assistant Professor Dr. Todor Petkov Petkov.

I. General Characteristics of the Candidate's Research and Applied Scientific Activities

For the competition for the academic position of "Associate Professor," Chief Assistant Prof. Dr. Todor Petkov participates with a total of 32 scientific works and 1 laboratory manual, categorized as follows:

Scientific publications forming the habilitation thesis structure – 11 (B.1 to B.11).

Papers presented at international conferences in Bulgaria and abroad – 19 (B.1, B.2, B.6, B.8, B.9, G.12-G.26).

Articles in specialized scientific journals in Bulgaria and abroad – 7 (B.3, B.4, B.5, B.7, B.10, B.11, G.7,21).

Scientific publications in globally recognized referenced databases – 26 (B.1-B.11; G.1-G.26).

Scientific publications in non-referenced journals – 6 (G.27-G.32).

Scientific works with SJR impact rank – 3 (B.5, G.7, G.10, G.11).

Independent scientific publications – 3 (G.22, G.23, G.25).

The submitted documents demonstrate that Chief Assistant Prof. T. Petkov has participated in various international scientific forums in Bulgaria and abroad. It is notable that most of the scientific works are published in prestigious journals of IEEE and Springer, highlighting the quality of the candidate's research.

The research activity of Chief Assistant Prof. Dr. T. Petkov focuses on:

- Modeling and application of neural networks;
- Predicting properties of chemical compounds;
- Intelligent methods for modeling real-world processes;
- Application of modern methods in education.

An analysis of the submitted materials shows that Chief Assistant Prof. Dr. Todor Petkov exceeds the required minimum scientometric indicators specified by "Appendix I to Article 1a, Paragraph 1 of the Rules for the Development of Academic Staff – Area 5, Technical Sciences" and the minimum requirements of the University "Prof. Dr. Asen Zlatarov" - Burgas.

According to group indicator "A," the candidate possesses a doctoral degree as per Diploma №0038/26.02.2018, issued by the University "Prof. Dr. Asen Zlatarov" - Burgas. Chief Assistant Prof. Dr. Todor Petkov has compiled 11 scientific works from referenced and indexed journals, equivalent to a habilitation thesis under indicator "B," with a total of 102.8 points, surpassing the required minimum of 100 points.

For core indicators G.7 (scientific works, referenced and indexed in globally recognized databases) and G.8 (scientific publications in non-referenced journals with peer reviews), a total of 310.14 points was achieved (274.5 points for G.7 and 35.64 points for G.8), exceeding the minimum required 300 points.

Regarding indicator D.12 (citations or reviews in scientific publications indexed in globally recognized databases like Scopus or Web of Science), the candidate significantly exceeds the minimum requirements with 890 points.

In terms of group indicator "E," the data is as follows:

E.18 – Participation in national projects: 20 points;

E.19 – Participation in international projects: 100 points.

This results in a total of 120 points for group "E."

In the summary of minimum requirements provided by the candidate, a minor discrepancy was noted in the sum for group "G," where the total was listed as 309.84 points, whereas my calculations show it to be 310.14 points.

2. Assessment of the Candidate's Pedagogical Preparation and Activities

The teaching activities of Chief Assistant Prof. T. Petkov span 9 years in the Department of Computer Technologies and Systems at the Faculty of Technical Sciences. A summary of lectures and exercises conducted by the candidate in 10 different courses for Bachelor's, Professional Bachelor's, and Master's degrees over the last four years was provided.

He has been the lead instructor for courses such as "Design of Mobile Devices" in the Bachelor's program and "Computer Systems and Technologies – Programming Module" in the Master's program.

Between 2015 and 2024, 10 students successfully defended their theses under the supervision of Chief Assistant Prof. Todor Petkov.

The candidate co-authored a laboratory manual for Digital Circuitry and contributed to curricula development for courses including "Design Automation," "Programming Client Web Applications," "Programming Mobile Applications," and various practical training modules. These materials reflect modern technological advancements and aim to prepare highly qualified professionals.

3. Main Scientific and Applied Contributions

The materials submitted for the current procedure include a self-assessment of contributions. After reviewing the scientific works and the self-assessment, the contributions can be summarized as scientific-applied and practical, organized into three thematic areas:

- Applications of neural networks;
- Prediction of chemical compound properties;
- Applications of modern methods in education.

4. Significance of Contributions to Science and Practice

The scientific achievements of Chief Assistant Prof. Dr. Todor Petkov result from his in-depth work. His research outcomes have received significant recognition within the international scientific community, as evidenced by numerous citations of his publications. According to the Scopus database, Chief Assistant Prof. Dr. Todor Petkov has an h-index of 6.

5. Critical Notes and Recommendations

I have no significant critical remarks or recommendations regarding the materials submitted by Chief Assistant Prof. Dr. Todor Petkov.

6. Conclusion:

Based on the review of the submitted scientific works, their significance, and the contained scientific, applied-scientific, and applied contributions, I find it reasonable to propose that Chief Assistant Prof. Dr. Todor Petkov be selected for the academic position of "Associate Professor" in the field of higher education – 5. Technical Sciences, professional field – 5.3. Communication and Computer technology

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Prepared by:

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