

## **STATEMENT**

on the competition for the academic position of "Associate Professor"

Field of Higher Education: **5. Technical Sciences**

Professional Area: **5.2. "Electrical Engineering, Electronics and Automation"**

Scientific Specialty: **"Biomedical Engineering and Technologies"**

Announced in the State Gazette, Issue No. 15, dated February 21, 2025

Candidate: **Chief Assistant Engineer Nikolay Tinkov Dukov, PhD**

Member of the Scientific Jury: Professor Engineer Margreta Parashkevanova Vasileva, PhD

### **1. General Overview of the Candidate's Research and Applied Scientific Activity**

The candidate for the position of Associate Professor, Eng. Nikolay Tinkov Dukov, PhD, has provided information regarding his research and applied scientific work through a report in accordance with Article 2b of the Law on the Development of the Academic Staff in the Republic of Bulgaria, meeting the minimum national requirements for holding the academic position of "Associate Professor" in the field of higher education "Technical Sciences."

The current procedure includes 29 publications, all of which have been published in the scientific database Scopus. Eleven of the publications correspond to indicator B4, while 18 scientific publications align with indicator G7. The total number of citations considered for the competition is five.

The candidate has publications in journals with a cumulative impact factor of 28.670.

## **2. Evaluation of the Candidate's Pedagogical Training and Teaching Activities**

Eng. Nikolay Dukov, PhD has over 11 years of teaching experience as a part-time lecturer in the Department of Electronic Engineering and Microelectronics and as an assistant in the Department of Computer Science and Technologies at the Technical University of Varna. Additionally, he has served as an assistant and chief assistant in the Department of Medical Equipment, Electronics, and Information Technologies in Healthcare at the Medical University "Prof. Dr. Paraskev Stoyanov" – Varna.

He teaches courses such as "Programming," "Medical Electronics," "Computer Processing of Medical Signals and Images," "3D Printing in Medicine," and others.

I consider the candidate's pedagogical training to be of a high level.

## **3. Major Scientific and Applied Research Contributions**

The candidate's scientific and applied research contributions are reflected in:

- Computer modeling and fabrication of physical breast phantoms;
- Development of technologies for simulation-based investigation of phantoms and evaluation of their effectiveness in imaging diagnostics;
- Segmentation and modeling of breast lesions based on clinical images.

Another group of contributions relates to developments in the areas of material characterization, new contrast agents for imaging diagnostics, and advanced imaging methods, as well as validation systems and their implementation.

#### **4. Significance of Contributions to Science and Practice**

Nikolay Dukov's research contributes to both theory and practice, as it addresses current issues related to the development of computer models, simulations, algorithms, and software applications in Biomedical Engineering and Technologies. The results of in-depth experimental studies have been implemented in practice, leading to the verification of new facts in both theoretical and applied fields.

The outcomes of the conducted research are available to specialists through the candidate's publications. The documents submitted for participation in the competition meet the quantitative criteria required for the academic position of "Associate Professor."

#### **5. Critical Remarks and Recommendations**

I have no critical remarks regarding the candidate. He is encouraged to continue his work in the field of Biomedical Engineering and Technologies.

#### **Conclusion**

Based on the presented scientific works, their significance, the scientific, applied, and research contributions they contain, and the scores obtained in the respective evaluation groups, in accordance with Article 2b of the Law on the Development of the Academic Staff in the Republic of Bulgaria, I propose that Eng. Nikolay Tinkov Dukov, PhD be appointed to the academic position of "Associate Professor" in the professional field 5.2. "Electrical Engineering, Electronics and Automation," specializing in "Biomedical Engineering and Technologies."

05. 06. 2025 г.

**Member of the Scientific Jury.**

Prof. M. Vasileva, PhD

Залчено на основание чл. 5,  
§1, 6. „В“ от Регламент (ЕС)  
2016/679

