

## OPINION

on a competition for the academic position of "Associate Professor" in the field of higher education 5. Technical Sciences, professional field 5.1 Mechanical Engineering (Robotic Devices with Applications in Medicine) for the needs of the Department RiMIS of the Institute of Robotics of the Bulgarian Academy of Sciences, announced in the State Gazette No. 39 of 13.05.2025.

The opinion is prepared by Prof. Dr. Maya Ivanova Dimitrova, Institute of Robotics at the Bulgarian Academy of Sciences, in my capacity as a member of the Scientific Jury for the competition in accordance with Order No. 75 / 16.07.2025 of the Director of the Institute of Robotics at the Bulgarian Academy of Sciences, Prof. Dr. August Ivanov.

Only one candidate has submitted documents for participation in the announced competition: Assistant Professor Dr. Eng. Veronika Ivanova Atanasova-Georgieva from the Institute of Robotics - BAS.

### 1. General Description of the Presented Materials

The documents, submitted by the candidate in the competition, comply with the requirements of the Law for Development of the Academic Staff in the Republic of Bulgaria, the Regulations of Application of the Law for Development of the Academic Staff in the Republic of Bulgaria and the Regulations on the terms and conditions for acquiring scientific degrees and occupying academic positions of the Institute Robotics of the Bulgarian Academy of Sciences. Dr. Veronika Ivanova participates in the competition with 11 publications, indexed in Scopus and WoS, equivalent to a monograph, and 22 publications in non-refereed journals and volumes.

A list of 13 citations in Scopus and WoS is presented. One study published in a foreign publishing house with an ISBN (42 pages), which does not meet the minimum national requirements, is also presented, as well as data on participation in national and international projects, within the framework of which some of the publications submitted in the competition are part.

### 2. Candidate Details

Dr. Eng. Veronika Ivanova received a Master's degree in Industrial Engineering and Management from the Faculty of Economics, Technical University - Sofia in 2000. She was employed as an Engineer at the Central Laboratory of Mechatronics and

Instrumentation of the Bulgarian Academy of Sciences in 2002, since 2004 she has been an Assistant, and since 2011 she has been an Assistant Professor at ISER, transformed in 2017 into the Institute of Robotics - BAS. In 2020 she obtained the scientific degree of "Doctor" with a thesis on the topic: "Laparoscopic Executive Instruments for Robots". The result is included in the utility model "System for Analysis and Control of the Mechanical Properties of Biological Tissues", No. 4347/BG/U/2019/4347-[5]/28.11.2023 / 30.05.2019. Dr. Eng. Veronika Ivanova participated in a project under the EC Horizon 2020 Framework Program (2024-2025), two projects under Operational Programs (2012-2013), etc.

### 3. General Characteristics of the Candidate's Scientific Works and Achievements

The table presents the number of points obtained by indicators for Area 5. Technical Sciences of the candidate Dr. Eng. Veronika Ivanova after consulting the world-renowned database of scientific information Scopus:

Indicator Group	Indicator (I)	Minimal Requirements	Number of Points of the Candidate
A	Thesis for the award of the PhD degree	50	50
B	4. Habilitation thesis – scientific publications (no less than 10), which are referenced and indexed in world-renowned databases of scientific information (Scopus) – 11 Publications 4.1 – 4.11	60/n  >100	223
G.	8. Scientific publications in non-refereed journals with scientific review or in edited collective volumes 8.1 – 8.16 (8.2, 8.3, 8.7, 8.8 and 8.14 are with SP) 7.1 – 7.6 have been moved from I7 to I8	20/n or with separation protocols (SP)  >200	207,30
D	12. Citations (or reviews) in scientific publications, referenced and indexed in world-renowned databases of scientific information or in monographs and collective volumes - 13 citations in Scopus	10  >50	130
	Total	>400	610,30

As can be seen from the table, the points of the candidate Dr. Eng. Veronika Ivanova cover and significantly exceed the minimum national requirements (under Art. 2b, para. 2 and 3 of the Law for Development of the Academic Staff in the Republic of Bulgaria for the position of "Associate Professor" in the scientific field and professional direction of the competition according to the applied evaluation criterion.

The scientific papers submitted by the candidate do not repeat those from previous procedures for acquiring a scientific title and academic position; There is no plagiarism proven in accordance with the statutory procedure in the scientific papers submitted for the competition.

#### **4. A Substantive Analysis of the Candidate's Scientific and Applied Scientific Achievements Contained in the Materials for Participation in the Competition**

The candidate's contributions are in the areas of robotic surgery in medicine and medical information systems. Specifically, of a *scientific nature* is:

1. A robotic system for analysis and control of the mechanical properties of biological tissues with application in laparoscopic operations, which, through the parameter "relaxation time"  $\tau$ , characterizing the internal structure of the tissue (its elasticity and viscosity), signals the presence of anomalous areas in the object.

*The following contributions are of a scientifically applied nature:*

2. Design and development of a system for collecting, processing and visualizing data with applications in medicine;
3. Training platform in minimally invasive surgery;
4. Method for ECG monitoring of patients added to an application for sufferers of disasters and accidents;
5. An approach to data optimization in healthcare with the introduction of electronic chip cards;
6. Approach to designing laparoscopic robotic performing instruments;
7. Approach to implementing a device for surgical robots in local tumor therapy.

#### **5. Personal Impressions of the Candidate**

My contacts with the candidate are purely collegial. We have no joint projects or publications. My personal impressions are of a scientist with motivation for achievements and modesty in relations with colleagues.

## CONCLUSION

The works submitted by the candidate for the competition fully comply with the requirements of the Act on the Development of the Academic Staff in the Republic of Bulgaria, the Regulations for its implementation, the Regulations of the Bulgarian Academy of Sciences and the Regulations of the Institute of Robotics at the Bulgarian Academy of Sciences. Based on the above, I would like to recommend to the Scientific Jury to propose to the Scientific Council of the Institute of Robotics-BAS to elect Dr. Eng. Veronika Ivanova at the academic position of "Associate Professor" in the field of higher education 5. Technical Sciences, professional field 5.1 Mechanical Engineering (Robotic Devices with Applications in Medicine).

Prepared by:

Prof. Dr. Maya Dimitrova

04.08.2025