ИР - БАН
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OPINION

in a competition for the academic position of "Associate Professor" in the field of higher education 5. Technical Sciences, Professional field 5.2. "Electrical Engineering, Electronics and Automation", scientific specialty "Elements and Devices of Automation and Computer Technology", at the Institute of Robotics - BAS, announced in State Gazette No. 39 of 13 May 2025 with a sole candidate: Vanya Dimitrova Markova, PhD, Chief Assistant Professor at the Institute of Robotics, BAS

Prepared by: Nikola Georgiev Shakev, PhD, Associate Professor at the Technical University of Sofia

1. General characteristics of the professional, research and applied scientific activities of the applicant

The candidate Vanya Dimitrova Markova is currently a Chief Assistant Professor at the Institute of Robotics – BAS, URSM Section. Prior to that, she consecutively held the academic position of "Assistant" at the Institute of Systems Research and Robotics - BAS (2008-2013) and the position of researcher at the Institute of Control and System Research, BAS (2001-2008).

In 1987 she graduated from the University of Plovdiv "Paisii Hilendarski" with a degree in Mathematics. In 2013 at the Institute of Systems Engineering and Robotics - BAS she defended his dissertation on the topic: "Methods and algorithms for describing the behavior of an autonomous mobile sensor agent" and acquired the educational and scientific degree of Doctor in "Elements of Automation and Computer Technology".

In the materials of the competition for associate professor, describing her research activities, the candidate has submitted 31 scientific publications. From them, it can be clearly concluded that her research activity falls entirely within the scope of the competition. The candidate meets the national requirements for occupying the academic position of "Associate Professor", as well as the requirements for the candidates for acquiring the academic position of "Associate Professor" at the Institute of Robotics, BAS. For the individual groups of indicators, the quantitative correspondences are as follows:

Group of indicators A (reported 50 points with the required 50 points) A doctoral diploma for a defended dissertation on the topic "Methods and algorithms for describing the behavior of an autonomous mobile sensory agent" was presented.

Group of indicators C (330 points reported against the required 100 points) 10 scientific publications are presented, in which the candidate participates as an independent author (in one publication) and co-author (in nine publications), published in journals that are refereed and indexed in world-renowned databases with scientific information.

Indicator Group D (240 points reported against the required 200 points) A total of 21 scientific publications were presented. Of these, 4 publications, in which the candidate participates as a co-author, are in journals that are referenced and indexed in world-renowned databases with scientific information. The remaining 17 scientific publications are in unrefereed peer-reviewed journals or in edited collective volumes. Among the submitted publications, 3 are standalone.

Indicator Group E (260 points scored against 50 points required) The reference attached by the candidate to the competition documents shows: 26 citations in scientific journals, refereed and indexed in world-renowned databases with scientific information, or in monographs and collective volumes.

A check in the Scopus scientific information database shows that as of 14.09.2025, 39 citations were found, some of them citations not announced by the candidate. For example, publication [7], from Group B has 13 unannounced citations received in 2025. This further indicates a high level of relevance and scientific potential of the applicant's publications.

2. Main scientific and applied contributions

Dr. V. Markova's scientific articles and reports are in the field of the competition for associate professor and in general, they can be divided into two large groups respectively: (i) modern methods and approaches for research, modeling and simulation of autonomous agents and multi-agent systems. Much of the research in this group, in addition to the more general concept of "autonomous agents", also concerns the narrower field of autonomous mobile robots; (ii) modern methods and approaches using various training-based techniques to obtain knowledge and/or determine parameter values in control algorithms. The first group of publications is directly applicable to the creation and management of autonomous agents, and the second group explores elements of critical importance for the application of training and the use of information from sensor devices and other available sources. The scientific problems developed by the candidate are up-to-date, and the presented results are of scientific and applied importance. I accept the claims for contributions in the way they are formulated by the candidate.

3. Significance of contributions to science and practice

The scientific publications submitted by the candidate contain sufficient scientific, applied and applied contributions in the field of the competition.

4. Critical remarks and recommendations

I have no significant critical comments on the materials submitted for participation in the competition. Regarding the candidate's research activities, the participation in scientific projects and the publication of the results obtained in globally recognized and refereed journals makes a good impression. I believe that research has the potential to be developed into broader and interdisciplinary applications, as well as

to form interdisciplinary teams. I would recommend Dr. Vanya Markova to continue active work in the topics she has chosen.

5. Conclusion

After getting acquainted with the presented materials, I can conclude that they fully meet the requirements set out in the Law, and the Regulations of the Bulgarian Academy of Sciences and the Institute of Robotics for occupying the academic position of "Associate Professor". This gives me reason to recommend to the Scientific Jury and the Scientific Council of IR-BAS to support the election of Dr. Vanya Dimitrova Markova for the academic position of Associate Professor in the professional field 5.2 "Electrical Engineering, Electronics and Automation", scientific specialty "Elements and Devices of Automation and Computer Technology", according to the announced competition.

Jury member:

16.09.2025 (Assoc. Prof. Dr. Nikola Shakev)