



OPINION

by competition for the academic position of Associate Professor in
5.1 Mechanical Engineering (Robots and Manipulators)
announced in the State Gazette, issue 61 of July 29, 2025
with candidate: Dr. Yassen Kirov Paunski, Chief Assistant
Member of the scientific jury: Petko Hristov Petkov, Doctor of Engineering
Sciences, Professor

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

The candidate in the competition for "Associate Professor" in 5.1 Mechanical Engineering (Robots and Manipulators) at the Institute of Robotics - BAS, is Dr. Eng. Yassen Kirov Paunski, Chief Assistant Professor at the "Robotized and Mechatronic Intelligent Systems" section. The candidate participates in the competition with 24 works, of which 1 monograph, 9 scientific articles in publications that are referenced and indexed in world-renowned databases with scientific information and 14 publications in non-refereed journals with scientific review or in conference proceedings. The monographic work is an independent publication of the candidate and is dedicated to the power supply and drive systems of robots. The topic of the dissertation for obtaining the scientific and educational degree "doctor" is in the field of the competition. The content of the works shows that the candidate has a sufficiently high qualification and works successfully in the field of robotics.

2. Main scientific and applied scientific contributions

The candidate's contributions are of a scientific-applied and applied nature. As noted above, the monographic work examines modern power supply and drive systems for robots. The publications examine the design and implementation of an integrated system for controlling and charging lithium-ion batteries for mobile service robots, as well as a power supply system for service robots based on a hydrogen fuel cell. A low-latency control system for mobile service robots has also been developed, ensuring effective operation in remote and hard-to-reach conditions by using the latest generation mobile networks (4G and 5G) and high-speed wireless standard (Wi-Fi). The candidate is one of the initiators and implementers in creating a curriculum and programs for the specialty "Robot Programmer". I believe that the candidate's contributions are sufficient for acquiring the position of "associate professor".

3. Significance of contributions for science and practice

The architecture of a power management system for mobile service robots based on lithium-ion batteries developed by the candidate ensures safe and reliable operation of the battery in various

operating modes, providing full access to the data of the power module through a standardized communication interface. The designed and implemented power supply system for service robots based on a hydrogen fuel cell offers an innovative solution to one of the main tasks in robotics - sustainable and reliable energy supply. The candidate's contributions in this area characterize him as a serious researcher who strives to implement modern and promising technologies in practice. There is a sufficient number of publications with scientific and applied contributions. Information is presented for 7 citations of the candidate's publications by Bulgarian and foreign authors. All indicators of the criteria for occupying the position of "associate professor" are met, and the quantitative requirements are exceeded.

4. Critical notes and recommendations

The candidate may be asked to increase publication activity in domestic and foreign journals so that his/her results can receive wider recognition from the scientific community.

CONCLUSION

Based on the contributions to the candidate's scientific works, his successful scientific research and applied activities, I find it reasonable to propose that Senior Assistant Professor Yassen Kirov Paunski take up the academic position of "Associate Professor" in the professional field of Mechanical Engineering, specializing in Robots and Manipulators.

05.11.2025

Jury member:



/Prof. Dr.Sc. Petko Petkov/