STATEMENT OF ACADEMIC OPINION

regarding the materials submitted for participation in a competition for the academic position of "associate professor" in professional field 5.2. Electrical Engineering, Electronics and Automation, scientific specialty "Elements and Devices of Automation and Computing" ("Application of Additive Technologies in Education"), for the needs of the laboratory section "Unmanned Robotic Systems" at Institute of Robotics "Saint Apostle and Gospeller Mathew" - Bulgarian Academy of Sciences

announced in the State Gazette: issue 39 of 13.05.2025
with candidate: Ch. Assist. Prof. Neda Venelinova Chehlarova, PhD
Member of the scientific jury: Prof. Eng. Rumen Kostadinov Popov, PhD

1. General characteristic on the research and applied science activity on the candidate

The scientific output of Senior Assistant Professor Neda Venelinova Chehlarova, PhD is in the field of "Technical Sciences". The results of the candidate's research and applied scientific activities have been published in a total of 13 scientific papers. A reference in the Scopus database shows that 5 of these publications are in publications that are referenced and indexed in world-renowned databases of scientific information (indicator G7 – 90 points). The other 8 are scientific publications in non-refereed journals with scientific review or in edited collective volumes (indicator G8 – 126.7 points). A monographic work has also been presented (indicator B4 – 100 points). The candidate has also submitted 2 publications beyond the minimum scientometric requirements, which are referenced in the scientific databases Web of Science and/or Scopus. The citations for the competition are 7 in total (indicator D12 – 70 points), all of which are in scientific publications, referenced and indexed in world-renowned databases with scientific information. The candidate presents 2 citations beyond the minimum scientometric requirements, referenced and indexed in world-renowned databases with scientific information. Beyond the minimum national requirements for the position of "associate professor", the candidate has also presented a list of participation in 2 scientific research projects. I believe that the materials submitted for the competition exceed the minimum national requirements for holding the academic position of associate professor and are at the necessary scientific, technical and professional level.

2. Assessment of the candidate's professional training and activities

Chief Assistant Professor Dr. Neda Chehlarova has over 2 years of work experience as a chief assistant in the Laboratory "Unmanned Robotic Systems" at the Institute of Robotics "St. Ap. and Ev. Matei" - BAS. The submitted documents show significant research activity (participation in two projects), which speaks of the good professional preparation of the candidate.

3. Major scientific and applied scientific contributions

The candidate has defined scientific, scientific-applied and applied contributions in four thematic areas, which I accept and can be summarized as follows:

In thematic area 1, the contributions focus on the analysis of additive manufacturing as a tool for strategic and scientific planning. Through these studies, research teams are provided with network maps by key authors, institutions and topics in global publications to serve as an information basis when applying for projects and scientific programs. A terminologically defined review of publications from scientific databases on the technological development and transformation of production processes through additive technologies has been made depending on the types of materials and principles of work with technical devices serving production processes.

In thematic area 2, the contributions focus on the development of didactic resources with 3D printed materials for working with people with visual impairments. The described task systems support the development of mathematical competence and spatial thinking in solvers. The tasks are suitable for use in Mathematics, Information Technology, Computer Programming classes and in STEM centers.

In thematic area 3, the contributions focus on scenarios for integrated STEAM classes using additive technologies and teacher training for their implementation in school education. The results of the tested scenarios with a 3D pen and ready-made 3D printed materials with students, teachers, educational experts from several cities in the country are presented. Such trainings are suitable for the development of digital competence, creative thinking and engineering skills.

In thematic area 4, the contributions focus on 3D modeling of educational resources to support formal and informal education. Ways to create models from systems of tasks for counting geometric bodies, percentages and fractions in software environments are described, as well as typical shortcomings in 3D printing of volumetric models using a 3D printer. Recommendations are made for streamlining the steps in creating 3D models by using ready-made tools and/or creating additional buttons/sliders in specific software products such as GeoGebra, XYZmaker3DKit, Prusa.

4. Significance of contributions to science and practice

The contributions achieved are significant for science and practice. It is also striking that the candidate for the position announced in the competition is in most cases the sole or first author of the published works, which is a guarantee of his own contribution. The results have been published in refereed and indexed journals and international scientific conferences, thus becoming available to the scientific community. A large part of the publications has an impact factor and a high quartile (Q2), which I note as positive. The citations show that the candidate is well-known and the results achieved are useful for theory and practice.

5. Critical notes and recommendations

To the presented for review works I don't have remarks from editorial, scientific and technical point. Obvious is that the candidate has encompassed several important scientific areas.

My recommendation to the candidate is that the results achieved from the scientific works be implemented in teaching activities in the form of teaching aids.

CONCLUSION

The scientific papers presented in the competition contain significant results, for which I give a positive assessment. Sufficient scientific, scientific-applied and applied contributions have been received. The minimum requirements have been achieved, the scientific-metric indicators have been met and on this basis I find it reasonable to propose that Senior Assistant Professor Dr. Neda Venelinova Chehlarova take up 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 Computing" ("Application of Additive Technologies in Education"), for the needs of the laboratory section "Unmanned Robotic Systems" at the Institute of Robotics "Saint Apostle and Gospeller Mathew" - BAS.

Date: 29.09.2025

JURY MEMBER:

Prof. Eng. Rumen Popov, PhD