Opinion

On the contest for the academic position of "Associate Professor"
in the specialty "Methodology of Teaching Mathematics,
Informatics and Information Technologies",
professional direction 1.3. Pedagogy of Teaching in...,
announced in the State Gazette (DV), issue 97 of 15.11.2024
for the needs of the section "Education in Mathematics and Informatics",
with the sole candidate Dr. Georgi Stamov Gachev

By Assoc. Prof. Dr. Ivaylo Stefanov Kortezov,
elected as a member of the Scientific Jury
with Order No. 4/14.01.2025 of the Director of IMI – BAS

The materials presented by Dr. Georgi Gachev include 23 articles in journals, 14 reports in collections of conference proceedings and 2 active patents. The publications presented for the contest are 23; they have not been submitted in previous contests. Among them there is one independent monograph, 8 articles and reports published in scientific publications, referenced and indexed in world-renowned databases of scientific information (all in Web of Science, some of them also in Scopus), of which 3 are independent and 5 are co-authored, as well as 14 articles and reports published in non-refereed journals with scientific review or published in edited collective volumes, of which 5 are independent and 9 are co-authored.

The total number of observed citations of the candidate is 51. Of these, 20 are submitted for this contest, including 6 citations in scientific publications, referenced and indexed in world-renowned databases of scientific information or in monographs and collective volumes, 1 citation in a monograph and 13 citations in non-refereed journals with scientific review. The citations submitted for this competition have not been submitted in previous contests.

The candidate's scientific contributions can be grouped into several main areas that reflect the main directions of his research. These areas include pedagogical research and didactic models, implementation of new technologies in education, applied mathematics and informatics, as well as development of software solutions with an educational focus.

1. Pedagogical research and didactic models. Research in this area focuses on the creation and experimental study of didactic models that combine traditional and modern approaches to teaching mathematics and informatics. Among the key emphases in this area is the application of constructivist learning models that emphasize the active participation of students in the process of acquiring knowledge. Research shows that the use of interactive and visual methods facilitates the understanding of complex mathematical and natural science concepts by students of different age groups. (Publications No. 2, 3, 4). Additionally, the candidate develops and analyzes methods for effective teaching of complex concepts through digital technologies. One of the key aspects of his research is the study of the effect of the use of visual and scripting programming languages on the understanding of algorithmic concepts. These studies provide valuable information for teachers

who are looking for optimal methods for teaching programming and mathematics. (Publications No. 12, 14, 19, 21).

2. Implementation of new technologies in education. The candidate explores the possibilities of integrating new technologies into the learning process, with an emphasis on the use of mobile devices and interactive learning platforms. Among the presented contributions are the development of methodologies for learning through mobile applications and the implementation of online automated assessment systems. These developments have the potential to improve the quality of learning and facilitate the work of teachers. (Publications No. 5, 17). Among the main results in this area is the analysis of the role of gamification in the educational process. The candidate's research shows that the use of game elements in mathematics and informatics education increases student engagement and leads to better performance. These findings can be applied in the development of new educational platforms and applications. (Publications No. 11, 15, 16, 20, 22).

3. Applied Mathematics and Informatics. The candidate's research includes the development of mathematical models and algorithms that find application in various fields. For example, he proposes a model for assessing the sensitivity and specificity of diagnostic tests without using standard reference tests. This methodology finds application in medical diagnostics, allowing for a better assessment of the effectiveness of tests used in pandemic situations. (Publication No. 18). Another significant contribution in this area is the development of mathematical models for epidemiological studies. These models can be used to predict the spread of diseases and assess the effectiveness of anti-epidemic measures. (Publication No. 7).

4. Development of educational software solutions. The candidate is active in the development of software platforms for learning, creating online systems for automated assessment of knowledge in mathematics. These systems allow for adaptive assessment of students' results and offer personalized recommendations for improving their knowledge. (Publication No. 6). Another significant contribution is the development of virtual learning environments that provide educational resources with free access. These platforms are aimed at supporting self-study and are designed to facilitate the work of both students and teachers. They offer access to a large number of tasks, video lessons and interactive exercises, which makes them a valuable tool for modern education. (Publication No. 23).

For years, I have had the pleasure of working with the candidate in our section at the Institute of Mathematics and Informatics – BAS, as well as participating with him in various conferences and events in the country and abroad. During this long period, Georgi Gachev has always made an extraordinary impression on me with his encyclopedic knowledge, flexible thought, ability to delve deeply into an extremely wide range of issues, as well as his ability to quickly solve a large number of practically-oriented problems and provide valuable ideas. The presented scientific contributions cover a wide range of topics related to teaching methodology, the use of new technologies in education, applied mathematics and the development of software solutions. The candidate's research is oriented towards the practical application of scientific results, offering specific tools for improving the educational process.

From the above, it can be seen that Dr. Georgi Stamov Gachev satisfies the criteria and indicators for holding the position of “Associate professor” according to the Law on the Education and Training of the Republic of Bulgaria and its Regulations. Moreover, he is definitely a talented researcher with in-depth skills in many practically important areas, as well as an experienced and qualified teacher. My assessment of him as a candidate for the scientific title of associate professor in the announced competition is positive. I recommend to the members of the esteemed Jury to elect Dr. Georgi Stamov Gachev for the academic position of Associate Professor in the field of speciality "Methodology of Teaching in Mathematics, Informatics and Information Technologies", professional field 1.3. Pedagogy of Teaching in...,

Sofia, 16.02.2025.

Author of the opinion:

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