

OPINION

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CONCERNING

the materials submitted for participation in a competition for the academic position
"professor"
of Plovdiv University "Paisiy Hilendarski"

Field of higher education: 4. "Natural sciences, mathematics and informatics"

Professional field: 4.6 "Informatics and computer science"

Scientific specialty: "Context modeling"

In the competition for "professor", announced in the State Gazette, no. 92 of 18.11.2022 and on the website of the Plovdiv University "Paisiy Hilendarski", Department of "Computer Technologies" at the Faculty of "Mathematics and Informatics", the candidate is Associate Professor Dr. Todorka Atanasova Glushkova from the Plovdiv University "Paisiy Hilendarski",

1. General presentation of the procedure and the candidate

By Order of the Rector of PU No. RD-21-341 of 15.02.2023, I am approved as a member of the Scientific Jury for the announced competition. By decision of the Scientific Jury from a meeting held online on 23-24.02.2023, my participation in the work of the jury was determined by preparation of an opinion on the presented materials.

As a member of the Scientific Jury, I have received the candidate's set of documents and works, which fully meet the requirements of the Law on the Development of the Academic Staff in the Republic of Bulgaria, the Regulations for its implementation, as well as the Regulations for the development of the academic staff of the PU.

From the attached curriculum vitae, it can be seen that the candidate Assoc. Prof. Dr. Todorka Glushkova has two master's degrees, respectively in mathematics and informatics, in 2011 she obtained the Educational and Scientific Degree "doctor" in the specialty "informatics" at the PU "Paisiy Hilendarski". From 1991 to the present, she worked as a teacher and head of the ICT department in a secondary school in the town of Brezovo. In the period 2013-2018, she held the academic position of

"assistant professor" at the PU and currently holds the position of "associate professor" in the department of "Computer Technologies" at the faculty of "Mathematics and Informatics" of the same university.

The professional qualification, scientific and educational activity of Assoc. Prof. Dr. Todorka Glushkova fully correspond to the specialty of the current competition. The references for the fulfillment of the minimum national requirements and the additional requirements of the FMI according to Art. 76. (1) of the Regulations of the PU show that the requirements for occupying the academic position "professor" are met, being exceeded.

2. General characteristics of the applicant's activity

Evaluation of scientific and scientific-applied activity.

The complete list of the candidate's scientific works contains 154 titles. Of these, 37 publications, one monographic work and 6 textbooks and study handbooks were selected for participation in the competition. All of them were issued in the period 2018-2023 and do not repeat the publications for the acquisition of the doctoral degree and the occupation of the academic position "associate professor". Scientific publications include 10 articles in journals with an impact factor (IF) and/or impact rank (SJR), two of which fall into quartiles Q1 and Q3 of WoS, 13 publications in issues indexed and referenced in the data bases of scientific information WoS and/or Scopus, 12 publications in peer-reviewed journals, as well as two co-authored books. The candidate's works demonstrate active scientific and research activity and contain original scientific and scientifically applied results in the field of informatics and computer technologies. The scientific and research activity of Assoc. Dr. Todorka Glushkova also includes participation in 5 international and 5 national research and educational projects, as well as numerous reports presented at international and national scientific forums.

The results of the overall scientific and scientific-applied activity, reflected in the presented works, indisputably show that the candidate has in-depth knowledge, high competence and accumulated experience in the field of informatics, computer systems and artificial intelligence.

Assessment of educational and pedagogical activity.

As a teacher in the "Computer Technologies" department at the FMI of PU "Paisiy Hilendarski" from 2013 to the present, Assoc. Prof. Dr. Todorka Glushkova carries out intensive classroom and extracurricular activities. During this period, she led the mandatory study disciplines "Discrete Mathematics" and "Web Design" with a total annual workload of 120 hours of lectures. In addition to the mandatory courses, she also teaches the courses "Block Programming" as an elective course for all computer science specialties and "Web Design" at the branch of the Plovdiv University

in Smolyan. She is the author of graduate and undergraduate courses in data bases, block programming, and computer modeling. Assoc. Prof. Dr. Todorka Glushkova is a co-author of 6 textbooks and study handbooks on computer modeling and artificial intelligence, which are used in the process of teaching students. She has over 20 graduates who have successfully defended their diplomas, 1 PhD student who has defended his doctorate and 3 PhD students who are currently studying. Outside the classroom, she participates in committees for state exams and thesis defenses for bachelors and masters at FMI, she is a member of the Faculty Council and participates in the administrative activities of the Department of Computer Technologies.

The materials presented in the competition documentation about the educational and pedagogical activity of the candidate show that Assoc. Prof. Dr. Todorka Glushkova fulfills and exceeds in terms of indicators the requirements of PU "Paisiy Hilendarski" for occupying the academic position of "professor".

Contributions and citations

The main scientific and scientific applied contributions of the candidate are in the field of informatics in the following main directions:

- *Modeling in cyber-physical space.* Approaches have been developed for modeling the spatial and temporal aspects of phenomena in cyber-physical space. The apparatus of ambient-oriented modeling and specialized programming languages is used. The results are contained in publications [18, 21, 22, 27, 33, 34] and the monograph [38].

- *Modeling and adaptation of virtual physical space in different subject areas.* A reference architecture of virtual physical space has been developed which is adapted to applications in e-learning, cultural heritage, smart agriculture and smart cities. The results are summarized in the published books [36, 37].

- *Modeling in educational cyber-physical space.* The results obtained are related to the development of a Distributed e-Learning Center (DeLC) and a Virtual Educational Space (VES) with applications for learning in STEM centers, lifelong learning and studying cultural-historical sites. The results are contained in publications [1, 4, 5, 8-11, 15, 16, 19, 20, 23, 24].

The results in the candidate's works can be evaluated as contributions to science in the field of informatics related to the methodology of building a virtual physical space, the development and application of cyber-physical systems. Part of the results obtained by Assoc. Prof. Dr. Todorka Glushkova have found application in the scientific research projects being developed, as well as in the pedagogical activity and practice at PU "Paisiy Hilendarski".

The list of noticed citations for the period 2017-2022 includes a total of 171 citations of 53 of the candidate's works. 45 of the citations are in prestigious publications that are indexed and referenced in the scientific information databases WoS and/or Scopus. With this, the results of the candidate's scientific research activity have become known and received recognition from the scientific community at home and abroad.

CONCLUSION

The documents and materials presented by Associate Professor Dr. Todorka Glushkova meet all the requirements of the Law on the Development of the Academic Staff in the Republic of Bulgaria, the Regulations for its Implementation and the Regulations of PU "Paisiy Hilendarski".

The candidate in the competition has presented a significant number of scientific works containing original scientific and scientific-applied contributions. The obtained theoretical developments have practical applicability, and some of them are directly oriented to the academic work. The academic and teaching qualifications of the candidate are indisputable.

After getting acquainted with the materials and scientific works presented in the competition, analyzing their significance and the contributions contained in them, I give my positive assessment and confidently recommend the respected Scientific Jury to prepare a proposal to the Faculty Council of the Faculty of "Mathematics and Informatics" for the selection of Associate Professor Dr. Todorka Glushkova at the academic position of "Professor" at PU "Paisiy Hilendarski" in the field of higher education 4. "Natural Sciences, Mathematics and Informatics", professional direction 4.6 "Informatics and Computer Sciences", scientific specialty: "Contextual modelling".

20.03.2023

Opinion prepared by:

/Prof. Dr. Vladimir Monov/