

R E V I E W

**for Associate Professor Todorka Atanasova Glushkova, PhD
on a competition for holding the academic position of “Professor”
in a professional field 4.6 Informatics and Computer Science
(Context Modeling)**

Reviewer: Acad. Ivan Petkov Popchev

By order No. RD-21-341 Plovdiv, 15.02.2023, of the Rector of the University of Plovdiv “Paisii Hilendarski” Prof. Rumén Mladenov, PhD, in connection with the announced competition for the academic position “**Professor**” in SG No. 92/18.11.2022 in the field of higher education 4. Natural sciences, Mathematics, and Informatics; professional field 4.6 Informatics and Computer Science (Context Modeling), a report by Prof. Angel Atanasov Golev, PhD – Dean of the Faculty of Mathematics and Informatics, and pursuant to Art. 4 (3) of the Act for the Development of the Academic Staff in the Republic of Bulgaria (ADASRB), I have been appointed an internal member of the Scientific Jury, approved by a decision of the Faculty Council of the Faculty of Mathematics and Informatics, protocol №29/25.01.2023.

As a reviewer, I have received all the documents submitted for participation in the competition.

According to ADASRB, the Rules for the Implementation of the ADASRB (Decree № 26 of 13 February 2019), and the Additional requirements for the academic position of “Professor” of the Faculty of Mathematics and Informatics (FMI), the candidates for professors must meet certain conditions.

Art. 29(1) Candidates to take the academic position “**Professor**” shall meet the following conditions:

1. To have acquired the educational and scientific degree of “Doctor” ...;
2. To have occupied the academic position of “Associate Professor” in the same or in another higher school or scientific organization for not less than two academic years ...;

3. To have presented a published monograph or equivalent publications in specialized scientific issues ..., which do not reproduce those presented for awarding the educational and scientific degree of “Doctor”, the scientific degree of “Doctor of Science”, and for occupying the academic position of “Associate Professor”;
4. To have presented other original scientific-research works, publications, inventions, and other scientific and scientific-applicable works or artistic creative achievements, to be assessed together;
5. To meet the minimum national requirements and the requirements under Art. 2b, Paras. 2 and 3, and the requirements under Art. 2b, Para. 5, respectively;
6. To have no plagiarism proven as per the legally established order in the scientific works.

(3) The candidates shall submit a reference on the fulfillment of the minimum national requirements under Art. 2b, Paras. 2 and 3, the requirements under Art. 2b, Para. 5, respectively, and a reference of the original scientific contributions to which shall be attached the relevant evidence laid down in this Act, the Regulations for its implementation, and the Regulations of the higher schools and of the scientific organizations.

Additional faculty requirements of FMI at the University of Plovdiv:

- at least 25 publications and 1 textbook or teaching aid that must not have been submitted for occupying the educational and scientific degree of “Doctor”, the scientific degree “Doctor of Science,” and for occupying the academic positions “Chief Assistant Professor” and “Associate Professor”;
- at least 15 of the submitted publications must be in journals or international conferences proceedings;
- at least 10 of the submitted publications must be in journals;
- evidence of at least 20 citations;
- to be the scientific supervisor of at least 1 doctoral student that has defended their dissertation at FMI of the University of Plovdiv.

Assoc. Prof. T. Glushkova, PhD **meets the conditions of Art. 29 (1).1** as she presented a Diploma for the educational and scientific degree “Doctor” № 1000002, 23 May 2012.

Assoc. Prof. T. Glushkova, PhD **meets the conditions of Art. 29 (1).2** according to

the presented document No. RD-38-6/06.01.2023, signed by the Rector of the University of Plovdiv "Paisii Hilendarski" Prof. Rumen Mladenov, PhD, which confirms that she has held the academic position „Associate Professor” for 4 years, 2 month, and 14 days.

Assoc. Prof. T. Glushkova, PhD **meets the conditions of Art. 29 (1).3** as she has submitted published monograph and specialized scientific issues..., which do not reproduce those presented for awarding the educational and scientific degree of “Doctor”..., for occupying the academic position of “Associate Professor”.

Assoc. Prof. T. Glushkova, PhD has submitted a “ **Complete list of scientific publications**”, in which **154 publications** are included, and a “**List of scientific publications for participation in a competition for acquiring the academic position “Professor”**” with a **total of 44 publications**, divided into 3 categories:

- I. Publications in journals and book chapters.
- II. Publications in conference proceedings and books.
- III. Textbooks and teaching aids.

The brief analysis of these publications showed the following:

- 1 publication is a monograph (№ 38);
- publications are in journals with IF (№№ 1-Q1, 7-Q3);
- 8 publications are in journals with SJR (№№ 2, 3, 8,10, 11, 12, 13, 14);
- 2 publications are books (№№ 36, 37);
- 1 publication is single-authored in Bulgarian (№ 38).

The presented “**List of noticed citations**” includes a total of **171 citations**, 45 of which are in Scopus or WoS of **53 publications**, part of which have been used for participation in previous procedures.

A “**Reference for compliance with the additional requirements of FMI according to Art. 76 (1) of the Law on the Development of the Academic Staff of the University of Plovdiv**” is prepared and signed by Assoc. Prof. T. Glushkova, PhD, and Prof. A. Rahnev, Dean of the Faculty of Mathematics and Informatics.

Assoc. Prof. Todorka Glushkova, PhD **meets the conditions** of:

- Art. 29 (1).4 as she has presented original research papers, publications, 44 and other scientific and applied research works – participation in 5 international and 5 national projects;
- Art. 29 (1).5 as she meets the minimum national requirements under Art. 26, Paras. 2 and 3, and the requirements under Art. 26, Para. 5 as well. A reference for the fulfillment of the minimum national requirements is presented with a number of points 1338.7, which is 243% fulfillment of the minimum national requirements;
- Art. 29 (1).6 as there is no legally proven plagiarism in the scientific works.

The materials for the competition contain **“Annotations of the Scientific Works”** in Bulgarian and English.

According to Art. 29 (3) of ADASRB, the candidates shall submit a **“Reference for the original scientific contributions”**. Assoc. Prof. T. Glushkova, PhD has submitted an **“Author's report on her scientific contributions for participation in the competition”** in a volume of 2 pages in 3 thematic areas, which is not according to Art. 29 (3).

Briefly, **the contributions** can be summarized as follows:

1. Prototype component for Calculus of Soft-Aware Modeling (CCA) in ViPS (Virtual Physical Space) (№№ 21, 38).
2. Complex Hierarchical Logic Interpreter for Decision Modeling (№27).
3. Reference architecture of the virtual physical space and its adaptation for smart crop production (№№ 2, 3, 7, 17, 26, 28, 29, 31, 32); cultural and historical heritage and tourism (№№ 6, 11, 12, 13, 14, 35) and smart city (№№ 25, 30, 36, 37).
4. Prototype of a distributed educational platform based on reference ViPS architecture in STEM school centers, which is also extended with four educational robots (№ 1, 10).
5. ViTOS platform for game-based learning support in the integrated university educational space and learning in STEM centers (№ 5).
6. First version of a health-route search model (№ 33).

The **“Documents for educational work”** are presented with a “Reference for

curricular and extracurricular employment”, a “Reference for activity with students, graduates, and PhD students”, and a “List of published textbooks and teaching aids”.

The references were prepared by Assoc. Prof. T. Glushkova, PhD and signed by Prof. Asen Rahnev, PhD – Head of the “Computer Technologies” Department, and Prof. Angel Golev, PhD – Dean of the Faculty of Mathematics and Informatics. Briefly, in these references, it is noted that Assoc. Prof. T. Glushkova, PhD has led lectures in 4 disciplines in bachelor’s programs and 3 disciplines in master's programs; she has participated in the development of 5 teaching aids; she is the author of 5 courses in bachelor’s and master's programs and has participated in committees in the “Computer Technologies” Department; she is a member of the Faculty Council of FMI, the John Atanasoff Society of Automatics and the UBM.

Assoc. Prof. T. Glushkova, PhD has more than 20 defended graduates, she is the reviewer of more than 20 diploma theses; she has 4 doctoral students, one of whom has successfully defended their dissertation thesis, and 3 are in the process of study. There are 6 published textbooks in the “List of published textbooks and teaching aids”.

Accordingly, there are presented “**Research Documents**” with two references for:

- participation in research and educational projects;
- participation in international and national scientific forums.

The references were prepared by Assoc. Prof. T. Glushkova, PhD and signed by Prof. Asen Rahnrv, PhD – Head of the “Computer Technologies” Department, and Prof. Angel Golev, PhD - Dean of the Faculty of Mathematics and Informatics. These references state the following: 5 international projects, a member of the team of 5 national projects, and participation in 50 scientific forums.

The official note with ex. № NPD/010/10.01.2023, prepared by R. Garbova, declares the participation of Assoc. Prof. T. Glushkova, PhD, in 17 research projects. Respectively, the official note, signed by Prof. L. Doukovska, DSc –Institute of Information and Communication Technologies (IICT) at the Bulgarian Academy of Sciences, issued to Assoc.

Prof. T. Glushkova, PhD, confirms that she is a member of the research team in the project National Scientific Program "Smart Crop Production".

With official note Ex. № 262/20.01.2023, signed by Milko Sarafov - director of "Hristo Smirnenski" secondary school - Brezovo, it is notified that Assoc. Prof. Todorka Glushkova, PhD has participated in 6 international projects, of which 5 as a coordinator and in 1 national project as coordinator.

As a generalized "**scientometric image**" of Assoc. Prof. Asya Stoyanova-Doycheva, PhD, the world's scientific databases show the following:

- **Web of Science**: 22 publications, 17 sum of time cited, h-index 2;
- **Scopus**: 33 documents, 81 citations, h-index 5;
- **Google Scholar**: 356 citations, h-index 9, i10-index 8;
- **Research Gate**: RG Score 505.2, h-index 8, 305 citations;
- **ZbMATH Open**: 2 documents, since 2020;
- **IEEE Xplore**: 12 publications (2018 - 2022).

This "scientometric image" should be subject to mandatory self-analysis and **independent publication in IF journals**.

My personal impressions of Assoc. Prof. Todorka Glushkova. PhD are exceptionally positive. They can be confirmed over the years: "doctoral degree" reviewer (2011), "associate professor" reviewer (2018) and "professor" reviewer (2023), which makes me thoroughly convinced in her ability to present research for "Doctor of Science", containing theoretical summaries and solutions of major scientific and applied problems, which correspond to modern achievements and represent a significant and original contribution to science.

CONCLUSION

All conditions according to ADASRB, the Regulations for application of ADASRB, and the Additional requirements for the academic position "Professor" of the Faculty of Mathematics and Informatics (FMI) are met and I give a definite **positive** conclusion for the

election of Assoc. Prof. Todorka A. Glushkova, PhD in a competition for the academic position “Professor” in professional field 4.6 Informatics and Computer Science (Context Modeling).

I propose that the Scientific Jury unanimously vote on a proposal to the Faculty of Mathematics and Informatics to elect Assoc. Prof. Todorka A. Glushkova, PhD for the academic position of “Professor” in professional field 4.6 Informatics and Computer Science (Context Modeling).

10.03.2023

Reviewer:

Akad. Ivan Popchev