

# REVIEW

on

the competition for academic position “Professor”,  
professional field: 4.6. Informatics and Computer Science  
(Software technologies – Data intensive software platforms),  
for the needs of Sofia University “St. Kliment Ohridski”,  
Faculty of Mathematics and Informatics,  
announced in SG, issue 87 /19.10.2021

Only one candidate has submitted documents for participation in the announced competition: **Assoc. Prof. Dessislava Georgieva Petrova-Antonova**, PhD

**Reviewer:** Acad. Ivan Petkov Popchev, BAS

Pursuant to Art. 4 and Art. 29a of the Act for the Development of the Academic Staff in the Republic of Bulgaria (ADASRB), Art. 60 of the Rules for the Implementation of the ADASRB (RIADASRB), Art. 118 (1) и (3) of the Rules for the Terms and Requirements for Acquisition of the Academic Degrees and Occupation of Academic Positions at Sofia University “St. Kliment Ohridski” (RTCAADOAPSU) and Decision of the Faculty Board of the FMI (Minutes No. 16 of 29.11.2021), Order No. RD-38-593/10.12.2021 of Rector Prof. Anastas Gerdjikov, PhD, I have been appointed as a member of the Scientific Jury for the competition for the academic position of “Professor” in professional field in провеждане на конкурс за „професор“ по професионално направление 4.6. Informatics and Computer Science (Software technologies – Data intensive software platforms), announced in State Gazette (SG) 87/19.10.2021.

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

According to ADASRB, RIADASRB (Decree No. 26 of 13 February 2019) и RTCAADOAPSU the candidates for the professor shall meet certain requirements.

Art. 29.(1) Applicants to occupy the academic position of Professor must 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 journals ..., which do not reproduce those presented for awarding the educational and scientific

degree of “Doctor” and for awarding of the scientific degree of “Doctor of Science” and for occupying the academic position of “Associate Professor”;

4. to have presented other original scientific 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 under Art. 2b, Para. 2 и 3, respectively the requirements under Art. 2b, Para. 5;
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 fulfilment of the minimum national requirements under Art. 2b, Para. 2 и 3, respectively the requirements under Art. 2b, Para. 5, and a reference of the original scientific contributions to which shall be attached the relevant evidence laid down in this Act, in the Regulations for its implementation and the regulations of the higher schools and of the scientific organizations.

**Assoc. Prof. D Petrova-Antonova meets the requirements of Art. 29(1).1** as she has submitted a diploma for the educational and scientific degree “Doctor” issued by the Higher Attestation Commission, No.31694, 16.08.2007 г.

**Assoc. Prof. D Petrova-Antonova meets the requirements of Art. 29(1).2** according to the presented document No.254/15.11.2021, issued by the Head of Human Resources I. Bicheva to confirm that she has hold the academic position „Associate Professor“ from 06.12.2012 and still working.

**Assoc. Prof. D Petrova-Antonova meets the requirements of Art. 29(1).3** as she has submitted 19 publications in specialized scientific issues, which do not reproduce those presented for awarding the educational and scientific degree of “Doctor” and for occupying the academic position of “Associate Professor”.

According to the „**List of scientific publications**“ Assoc. Prof. D Petrova-Antonova has **99 scientific publications** (20 in journals и 79 in conference proceedings), 2 books и 4 textbooks for laboratory exercises.

Assoc. Prof. D Petrova-Antonova has submitted **19 scientific publications** for participation in the competition. The analysis of these publications shows the following:

- 2 publications in journals (No.1 – **IF 3.447, Q2**; No.2 – **SJR 0.404**);
- 11 publications in conference proceedings **with SJR** (No.3, No.4, No.5, No.6, No.8, No.11, No.13, No.14, No.16, No.18 и No.19);
- 6 publications in conference proceedings (No.7, No.9, No.10, No.12, No.15 и No.17);
- all publications have co-authors, are **in English**, published in the period of 2016-2021.

From the system „Authors“ of Sofia University until 14.12.2021 for Assoc. Prof. D Petrova-Antonova are generated: MSc thesis, PhD dissertation, 30 scientific projects, 50 tutoring of defended master students, 20 publications in scientific journals, 2 articles in series, 77 publications in proceedings (на conferences and others), 45 participations in conferences, 2 books и 5 textbooks.

In the presented for the competition „**Reference of citations (without auto-citations)**“ **142 citations** are listed, from which **86 citations** in publications, referenced and indexed in **Scopus** of **32 publications**

and **56 other citations of 29 publications**, 5 publications are marked as presented in the competition for “Associate professor”, as well as publications that are not provided for the competition.

Assoc. Prof. D Petrova-Antonova meet the requirements of:

- **Art. 29(1).4**, as she has submitted original scientific works, publications and other scientific and scientific-applicable works ... – participation in **39 scientific projects**, from which she is a coordinator of the Bulgarian team of 1 international project (funded by VINNOVA Innovation Agency, Sweden) and coordinator of the team of 3 national projects, funded by the Bulgarian National scientific fund, MES.
- **Art. 29(1).5**, as she meets the minimum national requirements of Art.2b, Para. 2 и 3, respectively the requirements under Art. 2b, Para. 5 and Art. 115, Para. 1, Item 5 a) и б) of RTCAADOAPSU. The total number of point in each of the groups of indicators are as follows: A – 50, B – 240; G – 288; D – 312; E – 250.
- **Art. 29(1).6**, as she has no plagiarism proven as per the legally established order in the scientific works.

A „**Reference of indicators of Art. 122, Para. 2**“ with respective evidences is presented. The reference consists of 10 pages, including 47 proofs in 2 parts, which can be briefly marked as follows:

#### 1. **Teaching and pedagogical activity (Art. 122, Para. 2, Item 1)**

Assoc. Prof. D Petrova-Antonova has teaching lectures and exercises on 3 compulsory and 3 elective courses. She is a director of **master’s program „Technology Entrepreneurship and Innovation in Information Technology“** at FMI.

Assoc. Prof. D Petrova-Antonova has been a scientific supervisor of 1 defended PhD student. Currently she is supervising 2 PhD students. She has been a supervisor of 39 defended master’s students.

Assoc. Prof. D Petrova-Antonova is a co-author of 2 books, 3 textbooks and is a sole author of 2 textbooks.

#### 2. **Research activity (Art. 122, Para. 2, Item 2)**

Assoc. Prof. D Petrova-Antonova has 99 scientific publications, 142 citations, participation in 39 scientific and educational projects, **coordinates the Bulgarian team in a project for development of Digital Twin Cities Centre** in Sweden, research group lead of Data management at GATE Institute of Sofia university, member of 7 organizational and or program committee of international conferences, reviewer of 10 articles in international journals.

Assoc. Prof. D Petrova-Antonova has designed, developed and supported 3 of the software systems of Sofia University and 2 software systems of MES.

Assoc. Prof. D Petrova-Antonova **meets all requirements** of RTCAADOAPSU, Part V for academic position “Professor”, including Art. 122, Para. 2, Item 1 and Item 2.

According to Art. 29 (3) a „**Reference for original scientific contributions**“ is presented, including 19 publications submitted for participation in the competition. The reference consists of 7 pages.

The contributions can be briefly summarized as follows:

1. Open reference architecture of Big Data platform платформа designed in a modular fashion with multiple components covering the whole data lifecycle [No.B.06];
2. Technological framework for development and visualization of 3D semantic city model as part of a platform implementing the city digital twin, as well as 3D semantic models, which are compliant with the widely accepted standard of OGC [No.B.02, No.B.03, No.G.01];
3. Software platform for ambient air quality [No.B.01, No.G.03];
4. 3-tier architecture of software platform for calculation of indicators for smart cities assessment [No.G.06, No.G.09];
5. Methodological framework, based on the digital twin concept, for digital transition and performance assessment of smart cities [No.G.05];
6. Software platform for assessment of cognitive disorders and rehabilitation of patients with multiple sclerosis [No.B.04];
7. Architecture of platform, based on the concept of the patient digital twin for storage, analysis and visualization of data for cognitive disorders [No.B.05];
8. Models based on the Big Data Value Chain, which are applied in the field of the secondary education in Bulgaria [No.B.07, No.G.02, No.G.07];
9. Software prototype of a platform for real-time monitoring and detection of increased levels of carbon emissions of vehicles [No.G.08, No.G.10];
10. Open integration framework for communications of IoT devices using different communication and application protocols [No.G.11, No.G.12].

The following additional documents are presented:

- Letter of recommendation to Assoc. Prof. D Petrova-Antonova from **prof. Graham Kemp**, Chalmers University of Technology, Gothenburg, Sweden;
- Letter of recommendation to Assoc. Prof. D Petrova-Antonova from **prof. Sylvia Ilieva**, Department of Software technologies, FMI, Sofia University, Director of Big Data for Smart Society Institute (GATE), Sofia University;
- **Certificate of membership in the Institute of Electrical and Electronics Engineers (IEEE)** actual as of 2022.
- **The Best Paper Crystal Award** from the International Computer System and Technologies conference (CompSysTech) 2019.
- Official note No. 94-5248/10.11.2021 г., signed by Nataliya Mihalevska, Director of Education of Bulgarians Abroad and School Network Directorate to certify that Assoc. Prof. D Petrova-Antonova has been an expert in **2 national educational projects**.

The world scientific databases provide the following summarized „scientometric picture“ for the whole work of Assoc. Prof. D Petrova-Antonova:

- **Scopus:** 54 documents, 125 citations, h-index 6;
- **Web of Science:** 44 publications, 49 total times cited, h-index 4;
- **Google Scholar:** 234 citations, h-index 8, i10-index 6;
- **Research Gate:** RG Score 9.19, h-index 7 (h-index 5 excluding self-citations), 163 citations, 14 548 Reads.

The „Scientometric picture“ shows successful and productive activity, which shall be subject of a self-examination for definition of new directions for research and **further single authored publishing activity in journals with IF** in full harmony with the teaching, project and team responsibilities.

As a reviewer, I am fully convinced in the ability of Assoc. Prof. D Petrova-Antonova to complete a work for scientific degree of “Doctor of Science” with theoretical generalization and solutions of major scientific and applied problems, which correspond to the modern achievements and represent a significant and original contribution to science.

### **CONCLUSION**

All requirements of ADASRB, RIADASRB and RTCAADOAPSU has been fulfilled and I give a definite **positive** evaluation for the selection of Assoc. Prof. Dessislava Petrova-Antonova in the competition for the academic position of “Professor” in professional field 4.6. Informatics and Computer Science (Software technologies – Data intensive software platforms).

**I strongly recommend to the Scientific Jury to unanimously propose to the Faculty Board of the FMI at Sofia University to select Assoc. Prof. Dessislava Petrova-Antonova for the academic position “Professor” in professional field 4.6. Informatics and Computer Science (Software technologies – Data intensive software platforms).**

11.01.2022 г.

Reviewer: .....

Acad. Ivan P. Popchev