

OPINION

in the competition for the academic position "Associate Professor" in specialty "Communication Networks and Systems", professional strand 5.3. Communication and computer equipment, announced in SG No. 2000/2009. 45 of 28.05.2021 for the needs of the Distributed Information and Management Systems section with candidate chief assistant prof. Vladimir Nikolaev Ivanov PhD

Reviewer: Prof. Radoslav D. Yoshinov, PhD.

In connection with the procedure for the competition for the academic position "Associate Professor" in Special "Communication Networks and Systems", professional strand 5.3. Communication and computer equipment, announced in SG No. 2000/2009. 45 of 28.05.2021 for the needs of the Section "Distributed Information and Management Systems" and order of the Director of IICT – 108 from 17.07.2021. and in accordance with Article 4 of the Law on the Development of Academic Staff in the Republic of Bulgaria, Decree No26 of 19 February 2019, the Regulations on the Specific Conditions for Academic Position at IICT-BAS, I am appointed as a member of the scientific jury.

For participation in the competition for the academic position "**Associate Professor**" professional direction 5.3. Communication and computer equipment, has submitted documents the applicant chief assistant prof. Vladimir Nikolaev Ivanov MD from IICT.

As a member of the Scientific Jury, I have received:

1. Order of the Rector of the IICT – 108 of 17.07.2021;
2. Rules of Procedure for acquiring scientific degrees and for holding academic positions at IICT-BAS.
3. Copy of Vladimir Nikolaev Ivanov Master's Degree
4. Copy of diploma of scientific and educational degree "Doctor" of Vladimir Nikolaev Ivanov;
5. Certificate of service;
6. Creative CV;
7. Declaration of originality and reliability;
8. List of all publications of Vladimir Nikolaev Ivanov;
9. List of the publications submitted for the competition by Vladimir Nikolaev Ivanov;
10. Author's report by Vladimir Nikolaev Ivanov;

11. List of quotes of Vladimir Nikolaev Ivanov;

12. Additional documents

Note: all required competition documents were provided in electronic form to the CD

I have been chosen to deliver an opinion on the procedure at the first meeting of the scientific jury.

According to the **Law on the Development of Academic Staff in the Republic of Bulgaria of Art. 29(1)2**, the Rules for Implementation of the Law on Academic Staff in the Republic of Bulgaria, the Rules of Procedure for acquiring scientific degrees and for holding academic positions in the IICT, candidates for the academic position "Associate Professor" must meet the requirements described in Art. 10. (1) of the Regulations at IICT-BAS.

The candidate, Vladimir Nikolaev Ivanov has held the doctor's degree since 2015, as well as holds the position of "Chief Assistant prof." at the IICT-BAS since 2016 - more than three years. According to the certificate of service issued by the IICT, the candidate Vladimir Nikolaev Ivanov has an internship in the position of "Chief Assistant prof." - 06 years, 07 months.

General description of the presented materials of the competition.

The candidate, Dr. Vladimir Nikolaev Ivanov, provided for the competition 16 scientific publications (7 of which are indexed in the world-famous databases of scientific information Web of Science and/or SCOPUS) and 1 monograph.

Table showing compliance by points of the requirements of the law and the Rules of Procedure for acquiring scientific degrees and for holding academic positions in the IICT

Minimum required points by group of indicators for acad. associate professor position and their respective performance by the applicant:

G. 300 000 00	Indicators	Scientist Data	Number of points	Number of points per scientist
But	1. Dissertation on the award of an educational and scientific degree "Doctor"	Development of programming tools for modeling multifunctional electronic schemes.	50	50
In	Indicators 3 or 4	Complete bibliographical data and	Min. 100	100

		database in which they are visible (Only WoS or Scopus)		
D	Sum of indicators 5 to 11	Complete bibliographical data and database in which it is visible (WoS or Scopus only))	Min. 220	423.33
E	Sum of indicators from 12 to 15		Min. 60	370
Is	Sum of indicators from 16 to the end		Min. 20	105

All of this proves that the candidate, Vladimir Nikolaev Ivanov fulfils (exceeds) all the requirements of Art. 29(1)1 of the LAW, as well as all the requirements of Art. Art. 10. (1) of the Special Regulations in IICT-BAS for participation in the competition.

Short biographical data about the candidate.

From 2008 to 2015 he was a programmer at the Institute of Information and Communication Technologies at the Bulgarian Academy of Sciences, and since 2015 he has been chief assistant at the same institute.

Scientific results and contributions.

According to its content, the scientific papers submitted for participation in the competition can be classified in the following scientific fields:

I. Scientific and applied contributions to indicator group B3

There search studies formulate, consider and propose original solutions to problems related to transport system management and the development of technical means for measuring, identifying and simulating the dynamics of transport flows based on a modern program and apparatus elementary base. The scientific achievements in this group are published in a monograph, [C3.1], articles ([D8.7, D8.12]) and collections of reports at international conferences ([D7.5, D7.7]), according to the numbering of the documents submitted for the competition.

II. scientific and applied contributions to the G7 group of indicators

In the contributions under this direction are presented methods and algorithms for the management of transport systems using modern information technologies, architecture and structure of highly performance reprogramming FPGA instruments, innovative technologies for processing large volumes of data and highly noisy signals.

III. *Scientific and applied contributions in the indicator group G8*

The contributions under this direction represent modern methods, algorithms and technologies for urban traffic management and their practical realization based on highly performance reprogramming FPGA instruments

In general, the main practical contributions to the candidate's work are:

An algorithm has been developed to recognize traffic from video surveillance. Which is applicable to traffic management.

The technical tools are designed through FPGA utensils that realize creeping medium, PID regulator, Processing signals from pulsars.

- A traffic optimization model has been developed for a two-stage optimization task. The model allows maximum traffic and minimization of car queues.
- An algorithm has been developed for recognizing vehicles in motion and controlling traffic in an urban environment.
- In the optimization for street management (blvd. Shipka Pass and Ivan Dimitrov in Sofia) has been calculated new traffic light signal cycles, reducing car queues.
- Video monitoring is applied to measure traffic intensity by means developed based on FPGA instruments. This allowed automatic determination of traffic parameters

Participation in scientific projects

In addition, the applicant has covered, not mandatory, requirements but to be taken into account in the opinion.

Participation in 7 research projects, in two of which he was a leader.

Critical notes.

When assessing the candidate's materials for the competition, both as content and formatting make a good impression. Only a few minor technical inconsistencies and spelling errors were noted.

The large volume of research, scientific and scientific practical work of the candidate shapes him as a talented young scientist. Makes a pleasant impression his publication activity in magazines with SJR. I believe that there is sufficient citation numbers in indexed publications.

It is clear from the documents submitted that the applicant has already proven his teamwork opportunities. The reviewer believes that the habilitation of the

candidate will allow even more complete and complete expansion of his opportunities for independent expression and as head of scientific teams in his field.

Conclusion

The requirements, conditions and criteria of the Law on the Development of Academic Staff in the Republic of Bulgaria, the Regulations for implementation of the law and the Rules of Procedure for acquiring scientific degrees and for holding academic positions at ICT-BAS are fulfilled and I give a positive **conclusion** for the selection of the candidate chief assistant prof. Vladimir Nikolaev Ivanov PhD for the position Associate Professor of Professional Field 5.3. Communication and computer equipment.

I propose that the honorable Scientific Jury unanimously vote on a proposal to the Scientific Council of ICT-BAS to elect candidate chief assistant prof. Vladimir Nikolaev Ivanov PhD for the academic position "Associate Professor" in professional field 5.3. Communication and computer equipment.

10.09.2021

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PUBLIC RELEASE**

Prof. Radoslav Yoshinov,
M.D.