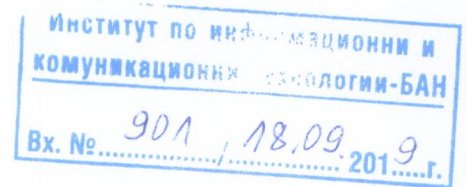


STANDPOINT



of Assoc. Prof. Dr. Tatiana Atanasova,
Institute of Information and Communication Technologies,
Bulgarian Academy of Sciences

for the competition for occupation of the academic position “Professor” in the professional field 4.6 “Informatics and Computer Sciences”, scientific specialty “Informatics”, announced for the needs of the section “Modelling and Optimization” at IICT-BAS, in “Dyrjaven Vestnik” No. 41 / 21.05.2019.

By Order No. 181 / 19.07.2019 of the Director of IICT-BAS, Prof. DSc. Galya Angelova, issued on the basis of a decision of the Scientific Council (Record No. 7 of 10.07.2019), in accordance with Art. 4, para 2 of Law for the Development of the Academic Staff of the Republic of Bulgaria and Art. 2 (2) of the Regulations for the Implementation of the Law for the Development of the Academic Staff of the Republic of Bulgaria, I have been appointed a member of the Scientific Jury of the announced in the “Dyrjaven Vestnik” No. 41 / 21.05.2019 Competition for occupation of the academic position of „Professor” in the professional field 4.6 “Informatics and Computer Sciences”, scientific specialty “Informatics” for the needs of the section “Modelling and Optimization” at IICT-BAS.

Only one candidate has applied for participation in the competition - Assoc. Prof. Dr. Vladimir Vasilev Monov. I attended the first meeting of the Scientific Jury on 25.07.2019 and received the materials on the competition in electronic form.

1. General description of the presented materials.

The conditions to be fulfilled by the candidates for the occupation of the academic position of “Professor” are set out in Article 29 (1) of the Law on the Development of the Academic Staff in the Republic of Bulgaria and Article 60 (1) of the Rules for the Implementation of the Law on the Development of Academic Staff in the Republic of Bulgaria..

The submitted documents for participation in the competition for academic position “Professor” meet these conditions and contain:

- copy of the diploma No. 18198 of December 10, 1988 for the scientific degree “Candidate of Sciences”, issued by the Higher Attestation Commission (HAC) at the Council of Ministers of the People's Republic of Bulgaria;

- a note issued by IICT-BAS certifying 36 years of work experience, 32 years and 09 months of which as research associate III-II centuries, Assoc. Senior and Associate Professor;
- reference for a registered patent application;
- a list of 25 scientific publications that have been referenced and indexed in world-renowned scientific information databases;
- a reference for meeting the minimum national requirements and the specific requirements of BAS and IICT-BAS;
- a declaration of non-plagiarism;
- a reference to the original scientific contributions to which the relevant evidences are attached.

For participation in the competition for the academic position of “Professor” Assoc. Prof. Dr. Vladimir Monov provides 25 scientific papers in English, which are outside the participating in the procedures for “Doctor” and “Associate Professor”. 24% of them are independent (6 in number); 64% are publications with one co-author (16 publications) and 12% are with two co-authors (3 publications).

The minimal national requirements set out in the Rules for the Implementation of the Law for the Development of the Academic Staff of the Republic of Bulgaria and Decree No. 26 of February 13, 2019 to amend and supplement the Rules for the Implementation of the Law for the Development of the Academic Staff of the Republic of Bulgaria, as well as the specific requirements of the BAS (Rules for the Terms and Conditions for Acquisition of Academic Degrees and Occupation of Academic Positions in the Bulgarian Academy of Sciences and Records of the 48th Session of the Seventh General Assembly of the BAS of May 20, 2019), are exceeded taking also into account the specific requirements of IICT-BAS. Submitted scientific publications in publications that are referenced and indexed in world-renowned scientific information databases (Web of Science and Scopus) - Group B, collect 264 points and overlap the required 100.

In Group G, the list of scientific publications in publications referenced and indexed in world-renowned scientific information databases (Web of Science and Scopus) beyond those indicated in Group B exceeds the required 260 points by 162, with the total score for the group being 362. This result was achieved by a significant number of publications with Q2, Q4, Impact Factor (IF) or SJR, with one collective monograph and one patent application submitted.

The required minimum score of 140 from group D - Citations in scientific publications, monographs, collective volumes and patents, referenced and indexed in world-renowned scientific information databases (Web of Science and Scopus), is again covered by a total of 210 points from the 35 citations found, all indexed in Scopus.

Assoc. Prof. Vladimir Monov has one PhD student successfully defended his PhD. Vladimir Monov has participated in 4 national scientific projects, 5 international scientific projects, and has managed 2 national scientific projects. Thus, 230 points are formed for Group E, with the required 150 points.

2. General characteristics of the applicant's scientific and applied activities

There are two main thematic areas that summarize the works presented:

- Matrix theory and application of matrix analysis in the study of dynamic systems and processes;
- Modelling, analysis and optimization in information and communication systems.

The applicant's significant scientific contributions are in the field of theoretical matrix analysis and in the field of nonnegative matrices. The results relate to the development of:

1. criterion for the analysis of the robustness of linear continuous and discrete systems with uncertain parameters;
2. criteria for reducibility of matrices and linear operators in different fields;
3. extending and generalizing Newton's classical inequalities beyond the field of complex numbers;
4. establishing the properties of the derivatives of the characteristic polynomial of nonnegative matrices, representing new results in the spectral theory of this class of matrices, known as the Peron-Frobenius theory;
5. sets of equalities and inequalities connecting elementary symmetric functions of eigenvalues and diagonal elements of the matrix;
6. formal-mathematical apparatus for description and study of bi-linear matrix products
7. formulation of a conjecture related to nonnegative matrices, the proof of which would lead to the solution of a problem in the field of inverse problems for eigenvalues.

Scientific contributions in the field of modelling, analysis and optimization in information and communication systems are related to:

8. theoretical study of the problem of preliminary assessment of the efficiency of the process of implementation and operation of complex information systems for resource management,
9. methods for optimizing the topology and energy efficiency of wireless sensor networks have been developed.

In the publications presented, the scientific contributions that have real practical application are as follows:

- The models, methods and systems for controlling the technological process of grinding in industrial ball mills are systematized. A publication with these results is impressive with great citation.
- Concepts are proposed for:
 - design and manufacture of a prototype of a combined tactile / voice interface;
 - Software platform with service-oriented architecture for integrating heterogeneous data from intelligent sensor systems.
- Algorithms are developed for:
 - optimization of production schedules in industrial enterprises;
 - synthesis of conflict-free schedules in a matrix packet switch.
- Innovative nanotechnology has been developed for the renovation and replacement of the working surface of shafts used in industrial production for the extrusion of sheet non-metallic materials
- Models of information traffic in a packet switch of the crossbar type used in the communication systems for the implementation of conflict-free execution of traffic from requests in the system have been developed.
- A prototype of a wireless sensor module with intelligent functions has been developed. An adaptive algorithm for optimizing energy consumption is also proposed in order to increase the battery life of the module. A patent application has been registered as a result of the development.

Additional notes

The interdisciplinary nature of the research of Assoc. Prof. Vladimir Vasilev Monov should be noted, but his results in the field of linear algebra and theory of automatic control are the most cited and visible.

A reference to the world-famous scientific information databases shows the following values for Assoc. Prof. Dr. Vladimir Monov

1. Google Scholar Citations:

References	185	142
h- index	6	5
i10- index	5	3

2. Scopus: 32 documents, h index 5

3. ResearchGate: Vladimir Monov - RG 8.78

69.6 Total Research Interest

100 Citations

5 Recommendations

2,274 Reads

3. Conclusion

My assessment of the scientific and applied activity of Assoc. Prof. Dr. Vladimir Monov is **positive**. I believe that the requirements of the Law for the Development of the Academic Staff of the Republic of Bulgaria, as well as the relevant Regulations for the implementation of the Law for the Development of the Academic Staff of the Republic of Bulgaria, the BAS and the IICT-BAS have been fulfilled.

The foregoing gives me a reason to propose to the Distinguished Scientific Jury to vote a proposal to the Scientific Council of IICT-BAS to select Assoc. Prof. Vladimir Vasilev Monov in the academic position of "Professor" in the professional field 4.6 "Informatics and Computer Sciences", scientific specialty "Informatics".

17.09.2019 г.

**NOT FOR
PUBLIC RELEASE**

/Assoc. Prof. Dr. Tatiana Atanasova/