

## REVIEW

For Assoc. Prof. **Vladimir Vasilev Monov, PhD**

Competition for the academic position of "**Professor**" in the professional direction 4.6  
"Informatics and Computer Science" specialty "Informatics"

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

Pursuant to Art. 4, par. 2 of Act of the Development of the Academic Personnel of the Republic of Bulgaria and decision of the Scientific Council of IICT - BAS (Protocol No. 7 of 10.07.2019) by Order No. 181, Sofia, 19.7.2019, the Director of the Institute of Information and Communication Technologies - Bulgarian Academy of Sciences prof. DSc. D. Angelova I have been appointed as member of the Scientific Jury in the competition for the academic position of "**Professor**" in the professional direction 4.6. Informatics and Computer Science, specialty "Informatics", announced in State Gazette no. 41 / 21.05.2019 for the needs of the „Modeling and Optimization“ section.

As a reviewer I received all 15 documents submitted for the competition.

According Act of the Development of the Academic Personnel of the Republic of Bulgaria, The Rules for the Implementation of the Act of the Development of the Academic Personnel of the Republic of Bulgaria (Decree No. 26 of February 13, 2019) and the Rules for Specific Requirements ... for academic positions at IICT, (SC Protocol No. 4/03.27.2019) candidates for professor must meet certain requirements.

Art. 29. (1) Applicants for the occupation of the academic position of "professor" shall meet the following requirements:

1. Have acquired the educational and scientific degree "PhD";
2. Have held the academic position of Assistant Professor at the same or another higher education institution or scientific organization for at least two academic years ...;
3. Have submitted published monographs or equivalent publications in specialized scientific journals... that do not repeat those submitted for the degree of PhD, the Doctor of Science and the academic post of Associate Professor;
4. Have presented other original research works, publications, inventions and other scientific and applied developments or artistic achievements that are evaluated in aggregate.
5. Meet the minimum national requirements under Art. 26, par. 2 and 3, respectively, of the requirements of art. 26, par. 5;
6. Not to have plagiarism in scientific works proven by law.

(3) Applicants shall submit a report on the implementation of the minimum national requirements under Art. 26, par. 2 and 3, respectively, of the requirements of art. 26, par. 5, and a reference to the original scientific contributions to which the relevant proofs set out in this Act are attached, in the regulations for its implementation and the regulations of higher schools and scientific organizations.

According to the Rules on Specific Requirements ... for filling academic posts in IICT:

Art. 3. In order to ensure a high scientific level of academic staff, the following minimum required points by groups of indicators are introduced in IICT.

#### 4.6. informatics and Computer science.

Group of indicators	Content	Professor
A	Indicator 1	50
B	Indicator 2	-
C	Indicators 3 or 4	100
D	Sum of indicators from 5 to 10	260
E	Sum of points in indicator 11	140
F	Sum of points in indicator 12 to the end	150

**Assoc. Prof. V. Monov meets the requirements of Art. 29 (1).1** having submitted the Higher Attestation Commission Degree for Candidate of Science in Engineering No. 18198, Sofia, October 12, 1988.

**Assoc. Prof. V. Monov meets the requirements of Art. 29 (1). 2** according to the service note presented Ex. No. 597 / 28.06.2019, signed by Human Resources: R. Deleva and Director: Prof. DSc. G. Angelova in assurance that he has a total work experience of 36 years, of which as Research Associate III-II -I degree, Associate Professor II degree and Associate Professor for 32 years and 09 months.

**Assoc. Prof. V. Monov meets the requirements of Art. 29 (1). 3** as having submitted a published collective **monograph** in Bulgarian:

Monov, B, N. Futenova. ERP Systems: Effectiveness of the Implementation Process, Monograph, 209 pp. Publisher: Institute of Knowledge Society, International Ed. Collegium with Editor-in-Chief K. Angelov, Scientific Reviewers: Prof. K. Angelov, DSc. And prof. T. Stoilov, DSc. ISBN 8978-619-7128-06-2, Sofia 2015, Bibliography of 80 titles.

According to the separation protocol for the joint monograph of June 19, 2019, the co-authors accept and respect their participation as equal in the monographic work, with the following division: for co-author Assoc. Prof. Vladimir Monov: pages 1 - 103. For co-author Assoc. prof. Natalia Futenova: pages 104 - 209.

The distribution of the Monograph fulfills the requirement of the additional provisions of the ADAPRB (26.02.2019) § 1 item 10 "... is not less than 100 standard pages in volume"

**The monograph proposed five methods, of which two are evaluations and three software, which provide coherence and opportunity for a comprehensive methodology of indicator systems.**

The documents in the competition included "**List of scientific publications**" total of **103 publications**, monographs and patent application (Ref. No. 112 400, dated 17.10.2016 years). Accordingly, the "**List of scientific publications**", submitted for the competition contains **25 titles** that do not repeat submitted for acquiring the degree "CTS" (1988) and Senior Associate II degree (1999).

The 25 titles submitted for the competition can be classified as follows:

- 4 publications in **journals with SJR and IF** (NNo. 36, 37, 38 and 39);
- 5 publications in **SJR journals** (NNo. 37, 42, 44, 69 and 96);
- 9 publications are in journals (NNo. 30, 33, 35, 70, 71, 72, 78, 79 and 85);
- 7 publications are in conference proceedings (NNo. 50, 57, 58, 60, 67, 74 and 97);
- **6 publications are independent** (NNo. 30, 34, 35, 36, 37 and 38) ;

**All publications are in English.**

The **Citation List** includes 66 citations of publications (NNo. 34, 35, 36, 39, 42, 44, 50, 67 and 69) submitted for participation in the competition.

**Assoc. Prof. V. Monov meets the requirements of:**

- **Art. 29 (1) .4** as he has submitted other original research papers, publications, and other scientific and applied developments - participations in projects 13, of which in 2 national projects he is the leader.
- **Art. 29 (1) .5** as it meets the minimum national requirements under Art. 2 b, par. 2 and 3, respectively, of the requirements of art. 2 b, par. 5. Presented under Art. 29 (3) reference (16 pages) for meeting the national minimum requirements shows 1116 points;
- **Art. 29 (1) .6** as there is no proven plagiarism in the scientific works according to the law.

According to Art. 29 (3) applicants submit a "**reference to the original scientific contributions**". The candidate submits a "**Reference for original scientific and applied contributions**" in volume of 9 pages.

**The reviewer appreciates the positively presented short texts - reviews for publications** NNo. 3, 6, 7, 9, 11, 26, 27, 47 and 48.

**Contributions** to publications submitted for participation can be summarized as follows

1. A criterion has been obtained that characterizes the spectral set of a convex set of invariant matrices and makes it possible to study the spectral properties of convex matrix sets through their subsets of simpler structure and lower dimension (No. 30).
2. A criterion for the reducibility of single matrices is obtained, which is summarized for the simultaneous reducibility of a dual matrix (No. 33).
3. Generalized Newton inequalities with symmetric functions of complex variables are proved (No. 34).
4. Properties of derivatives of a characteristic polynomial of nonnegative matrices (No. 35) have been established. Numerous inequalities have been proved that relate the functions of eigenvalues and diagonal elements of nonnegative matrices (No. 37). (No. 30) The relationships between the eigenvalues and the diagonal elements of square matrices with complex elements are proved.
5. The algebraic and vector-matrix properties, the spectral properties and the properties of the matrix medium and the determinants of the two products have been investigated and proved (NNo. 38 and 39).
6. A conjecture (No. 36) is formulated relating to nonnegative matrices, which leads to the solution of inverse problems for eigenvalues. In 2012, this claim was proved for special cases of matrices with a smaller dimension than A.G. Cronin in PhD thesis, University College Dublin.
7. An issue in ERP has been investigated concerning the ex-ante evaluation of the efficiency of deployment and operation of these systems (NNo. 70, 71 and 72).
8. Methods for optimizing the technology and energy efficiency of wireless sensor networks have been developed (NNo. 96 and 97).

As a summary "**scientometric image**" of Assoc. Prof. Dr. Vladimir Monov, three extracts from the world's scientific bases can be made:

- **Scopus** 32 cited documents, 75 citations, h-index 4;
- **Web of Science**: 23 total publications, 23 without self-citations, h-index 3;
- **Scholar. Google**: 183 citations, h-index 6, i10 - index 5.

The Publication No. 44 has 47 citations: V. Monov, B. Sokolov, S. Stoenchev. Grinding in ball mills: modeling and process control - Cybernetics and information technologies 12 (2). 51 - 68, 2012.

The three dimensions of the scientometric image provide sufficient information for **introspection** and new activities.

I have known Assoc. Prof. Dr. Vladimir Monov since his admission to ITC in 1984 and I can categorically define his qualities, which he has proven to be a **successful researcher**, **successful organizer** of teams for project, contract and program implementation, a fair partner and expert in information technology.

### CONCLUSION

All requirements, according to the Act of the Development of the Academic Personnel of the Republic of Bulgaria, The Rules for the Implementation of the Act of the Development of the Academic Personnel of the Republic of Bulgaria and Specific Requirements of ... for occupation of academic positions in IICT are fulfilled and I give a definitive **positive** conclusion for the selection of Assoc. Prof. Dr. Vladimir Monov, PhD in the competition for the academic position of "**Professor**" in professional direction 4.6 "Informatics and Computer Science" specialty "Informatics".

I propose to the Scientific Jury unanimously vote on a proposal to the Scientific Council of IICT - BAS to select Associate Professor Vladimir Monov, PhD for the academic position of "Professor" in the professional direction 4.6 "Informatics and Computer Science" specialty "Informatics".

19.09.2019

Reviewer:

**NOT FOR  
PUBLIC RELEASE**

Acad. Ivan P. Popchev