

**NATIONAL DEFENCE COLLEGE „G. S. RAKOVSKI”**

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**REVIEW**

*from Milena Kirilova Lazarova-Mitseva, Prof., PhD  
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*of the scientific papers presented for a competition  
for obtaining an academic position „Associate Professor“  
in higher education domain 5. Engineering studies,  
professional field 5.3 „Communication and Computer Engineering“,  
specialty „Automated Systems for Information Processing and Control“  
announced in SG No. 51/28.06.2019*

by the applicant:

*Lieutenant Colonel PhD Eng. Zarko Ivanov Zdravkov  
Chief Expert at the Strategic Planning Directorate of the Ministry of Defense*

This review has been prepared in my capacity as a member of the Scientific Jury as defined by the order No. СИ29-РД03-255/13.11.2019 of the Commandant of the National Defence College „G. S. Rakovski”.

The competition for obtaining an academic position „Associate Professor“ is in the higher education domain 5. Engineering studies, professional field 5.3 „Communication and Computer Engineering“, specialty „Automated Systems for Information Processing and Control“ and was announced by the Minister of Defense of the Republic of Bulgaria order No. OX-460/16.05.2019, as well as announced in SG No. 51/28.06.2019.

The competition for obtaining an academic position „Associate Professor“ is announced for the needs of the scientific section „Doctrines, Concepts and Experience from Practice” in the Defence Advanced Research Institute at National Defence College „G. S. Rakovski”.

The only candidate in the competition is Lieutenant Colonel PhD Eng. Zarko Ivanov Zdravkov.

Dr. Zarko Zdravkov was born on 26.03.1970 in Shumen, Bulgaria. He graduated from the Higher Military School of Artillery and Air Defense „P. Volov” in 1993 as a master engineer with a degree in Computer Engineering. He has graduated from the National Defence College „G. S. Rakovski” in 2005 with a master degree in specialty „Development and Management of Communication and Information Systems in Operations“. He received a PhD degree in the specialty „Automated Systems for Information Processing and Control” for his PhD thesis „Information Security Models in Database Management Systems”. The additional educational and qualification courses that Dr. Zdravkov completed in Bulgaria and abroad are as follows: "Networking Technologies" at CISCO Academy „G. S. Rakovski”, Sofia, Bulgaria, 2000; „International Staff Officers“ at the Royal Netherlands Military Academy, Delft, the Netherlands, 2002; „Information Security“ at the Swiss Federal University, Zurich, Switzerland, 2003; „Command and Control Systems, Communication and Information Systems (C4I)“ at the National Defence College „G. S. Rakovski”, Sofia, Bulgaria, 2003. At the moment Dr. Zarko Zdravkov works as a Chief Expert at the Ministry of Defense. He has also worked as a research associate at National Defence College „G. S. Rakovski” and the Institute of Defense. Since 2005 he has been a part-time lecturer in the Department of National and International Security at New Bulgarian University.

### **1. Scientific papers submitted by the applicant for participation in the competition that are accepted for evaluation in the review**

The applicant has submitted 27 scientific papers for participation in the competition as follows:

- a monograph [1] – 1 (210 pages);
- research papers published in unreferenced journals with scientific review and edited collective volumes in Bulgaria [2 ÷ 5] – 4 (total 30 pages);
- research papers published in the proceedings of scientific conferences held in Bulgaria [6 ÷ 26] – 21 (total 137 pages);
- an applied research work [27] – 1 (total 57 pages).

All scientific papers submitted by the applicant for participation in the competition have been issued in the relevant journal and conference proceedings. The scientific papers are published in the period 1996 – 2018. All submitted research papers are written in Bulgarian.

The habilitation work (monograph) of the applicant titled „Design of Secure Automated Information Systems“ is published by DioMira Publishing House in 2019.

Ten out of the 26 research papers submitted by the applicant for participation in the competition apart from the monograph are author’s own work, 16 are co-authored: 9 of them are written by two authors and 7 of them has three authors. In 9 of the co-authored papers the applicant is first author and in the other 7 he is the second author.

Six of the scientific papers submitted by the applicant for participation in the competition [4], [8], [10], [19], [20], [21] are included in the bibliography of his monograph „Design of Secure Automated Information Systems“ and are not reviewed as independent scientific papers for participation in the competition.

Citations of the applicant’s research papers that are presented for participation in the competition are as follows: 14 of the scientific papers of the applicant for participation in the competition have a total of 24 citations, including 3 citations in monographs and 21 citations in unreferenced scientific journals and conference proceedings in Bulgaria. One of the citations of research paper [10] is an auto-citation from a co-author in the publication and is not considered in the current review.

The list of the applicant’s citations contains citations of 4 scientific papers that are not submitted for participation in the competition.

The total number of points according to the national minimum requirements for obtaining an academic position „Associate Professor“ for the scientific papers submitted by the applicant for participation in the competition are as follows:

- group of indicators A – 50 points for defended PhD thesis (the minimum requirement for obtaining an academic position „Associate Professor“ is 50 points);
- group of indicators B – 100 points for a monograph (the minimum requirement for obtaining an academic position „Associate Professor“ is 100 points);
- group of indicators G8 – 271.67 points for 20 research papers published in unreferenced journals with scientific review and edited collective volumes in Bulgaria (the minimum requirement for obtaining an academic position „Associate Professor“ is 200 points);
- group of indicators D – 71 points (the minimum requirement for obtaining an academic position „Associate Professor“ is 50 points).

## **2. Overall characteristic of the applicant's research, scientific and pedagogic activity**

The main scientific area of the applicant's research activities is in the field of information security. The PhD thesis of the applicant Dr. Zarko Zdravkov titled „Information Security Models in Database Management Systems” also falls in a closely related research field of the information systems security. His research activities and studies in this scientific area continue after obtaining a PhD degree with further studies that advance, expand and explore the research and elaboration of approaches, methodologies and models for development of secure automated information systems, risk management, formulation of policies for security and control of access to automated information systems.

Based on the presented documents and the applicants research papers submitted for participation in the competition, his research and scientific activity can be evaluated as corresponding to the professional field and the specialty of the competition. All the criteria defined as minimum required points for the groups of indicators are fulfilled.

### **3. Opinion on the presence or absence of plagiarism**

During the evaluation of the scientific papers of the applicant submitted for participation in the competition and preparing of the current review as a member of the scientific jury, I am not aware of any anonymous and motivated written signal indicating plagiarism in the applicant's research publications.

### **4. Evaluation of the applicant's pedagogical training and activities**

In the list of the applicant's scientific papers and activities and in his CV is stated that he has conducted 3 training courses – a training course in 4 semesters of CCNA for CISCO Academy „G. S. Rakovski“ and two training courses for the master degree program in Cybersecurity at New Bulgarian University. Dr. Zarko Zdravkov has conducted the above mentioned training courses in the periods 2000 – 2009, 2005 – 2017 and 2015 – 2019 respectively. No data on the applicant's work with graduate or PhD students have been provided among the documents submitted for the competition. Nevertheless the applicant's monograph can serve as a valuable textbook and methodological study that would be useful in the training of undergraduate, postgraduate and PhD students in the field of information security.

### **5. Main scientific and applied research contributions**

The main research contributions of the applicant in the papers submitted for participation in the competition for obtaining an academic position „Associate Professor“ are in the field of information security, secure information processing and management in automated information systems. An approach for information security and access control to automated information systems have been investigated and proposed [1], models for providing and ensuring information security and methodologies for their implementation are suggested and evaluated [1] [2] [11] [12] [17] [18] [22] [26], technologies and tools for information security are also analyzed and assessed [1] [3] [9] [13] [14] [23]. Database models and automated information systems for headquarters and training information systems at the National Defence College „G. S. Rakovski“ have also been studied and developed [6] [7] [15] [16].

The scientific and applied research contributions of Dr. Zarko Zdravkov can be referred to the categories of improvement of existing scientific knowledge and research contributions applicable in practice. Part of the contributions are related to the proposal of new or modification of existing approaches, methodologies and while other contributions can be referred as new means to proof essential and new aspects of existing scientific problems and theories.

## **6. Importance of the research contributions of the applicant to the science and the practice**

The contributions of the applicant published in his scientific papers are implemented and applied in a number of practical applications, projects and case studies during his participation in a various research and application projects and contracts at the Headquarters Military Research Institute, Defence Advanced Research Institute at National Defence College „G. S. Rakovski”, Bulgarian Defense Institute „Professor Tsvetan Lazarov“, Ministry of Defense of the Republic of Bulgaria as well as during his participation in NATO and EU cyber-defense working groups.

The scientific and applied research activities and contributions of the applicant satisfy the requirements of the Act on the Academic Staff Development in Republic of Bulgaria and the Regulations governing the application of the Act. His research activities fall in important field of study and cover hot scientific topics. The research contributions are important both for enrichment of the scientific theory as well as applicable to specific practical cases and are also useful in the training of undergraduate, graduate and PhD students. The recognition of the importance of the applicant scientific contributions is evident from the citations of his scientific papers.

## **7. Assessment of the extent to which the contributions are made by the applicant**

The monograph of the applicant submitted for participation in the competition is his own work. Six (30%) out the other 20 scientific papers, presented for the competition apart from the monograph, are applicant's own work, the other 14 papers

(70%) are co-authors. In 9 (65%) of the co-authored papers the applicant is the first author, in the other 5 (35%) he is the second author. No protocols for co-authors' contribution in the co-authored scientific publications are submitted for participation in the competition, so even participation of the co-authors is considered for the co-authored papers. Taking into account the applicants own work publications and his participation as first author in the co-authored publications, I consider that the research contributions published in the scientific papers are largely a personal contribution of the applicant.

## **8. Critical remarks and recommendations**

I have the following critical notes and recommendations to the research papers of the applicant and the documents submitted for review for the competition for obtaining an academic position „Associate Professor“:

- the list of applicant's publications as well as the papers themselves that are included in his PhD thesis are not submitted as part of the documents for the competition;

- citations of 4 scientific papers of the applicant are included in the list of applicant's citation, even if the papers themselves are not submitted as part of the documents for the competition; the authors of these papers are missing in the relevant bibliographic description in the list of the citations;

- the contents of the training courses included as part of the applicant's pedagogical work are not submitted as part of the documents for the competition as well as official documents for the conducting the training courses are not presented;

- I recommend to the applicant to publish a textbook for the training courses that he has been teaching, although to a certain extent his monograph can also be considered as a useful resource for students training;

- I recommend to the applicant to focus his efforts on publishing his research contributions in international journals and present them at conferences abroad as well as in journals and conference proceedings that are referenced and indexed in Scopus and

Web of Science that will further expand the dissemination of his scientific results and contributions and will increase the citation of his scientific and applied research papers.

The above remarks and recommendations do not influence the value of the research work and the scientific contributions of the applicant.

### **9. Personal impressions of the reviewer**

I do not know the applicant personally and have no personal impressions of his research activities. This review is prepared on the basis of the documents submitted by the applicant for participation in the competition.

### **10. Conclusion**

Based on the presented documents and the applicants research papers, citations and participation in projects, his research and scientific activity can be evaluated as corresponding to the professional field and the specialty of the competition for obtaining an academic position „Associate Professor“. All the criteria defined as minimum required points for the groups of indicators are fulfilled.

### **11. Overall applicant evaluation**

Based on the presented documents submitted by the applicant for participation in the competition for obtaining an academic position „Associate Professor“, considering the scientific and applied research contributions achieved in his research publications as well as his pedagogical skills, taking into account the fulfillment of all the requirements of the Act on the Academic Staff Development in Republic of Bulgaria and the Regulations governing the application of the Act as well as the Regulations for the application of the Act, I find it reasonable to give **a positive evaluation** and to propose **Lieutenant Colonel PhD Eng. Zarko Ivanov Zdravkov** to obtain the academic position „Associate Professor“ in professional field 5.3 „Communication and Computer Engineering“, specialty „Automated Systems for Information Processing and Control“.

12.12.2019

Reviewer:

Sofia

(Prof. Milena Lazarova-Mitseva, PhD)