



MINISTRY OF DEFENCE

„PROFESSOR TSVETAN LAZAROV” DEFENCE INSTITUTE”

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REVIEW

by Professor Dr. Eng. Rosen St.Iliev

„PROFESSOR TSVETAN LAZAROV” DEFENCE INSTITUTE
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on the competition for occupying an academic position

„ASSOCIATE PROFESSOR“

**In the field of higher education 5. Technical Sciences, Professional field
5.3. Communication and computer engineering (Communication
networks and systems)**

Announced by „Professor Tsvetan Lazarov” Defence Institute
State Gazette, issue 61 of 18.07.2023

With candidate

Dr. Eng. GRIGOR RAYKOV VELEV

I. PAPERS ACCEPTED FOR EVALUATION

Scientific works and developments of Dr. Eng. Grigor Raykov Velev include one monograph, one book based on the dissertation work, one textbook, 19 publications (articles and papers), 5 national research projects (in 3 as a leader), 7 international projects, 12 other works (working projects, technical assignments, technical-economic papers, methods, etc.). Of these, the candidate participates in the announced competition with twenty scientific papers outside of the papers submitted for the award of his scientific and educational degree „doctor”. The scientific works proposed for review correspond to the professional direction of the competition. They can be grouped as follows:

- Monographs – 1 (Appendix 2, II.1.1);
- Book based on the dissertation – 1 (Appendix 2, II.1.2);
- Textbooks (university) – 1 (Appendix 2, III.12);
- Publications – 17, of which 5 articles (Appendix 2 – II.2.3, II.2.4, 2.7, 2.11 and 2.14) and 12 scientific papers (Appendix 2 – from II.2.1, to II.2.17, excluding those specified as articles), 5 of which are in English and the rest are in Bulgarian. There is one publication in Springer (II.2.15).

The authorship of the publications submitted for review is as follows:

- 1 monograph (volume of 291 pages), by 1 author - the candidate;
- 1 book based on the dissertation work (volume of 291 pages), by 1 author - the candidate;
- 1 university textbook (volume of 207 pages) - co-authored by three authors, which I also accept for review;
- 17 articles and papers, as two-thirds (11) are independent works, and in 2 of them the candidate is in first place. From them, I exclude for review one paper from an international scientific conference - II.2.10, in which I am a co-author.

For joint publications, I found no separation protocols applied and I assume an equal, proportional participation of their co-authors. The candidate has 17 citations in scientific publications, 2 of which are referenced and indexed in world-famous databases with scientific information (Scopus, Web of Science).

II. GENERAL CHARACTERISTICS OF THE CANDIDATE'S SCIENTIFIC-RESEARCH, SCIENTIFIC-APPLIED AND PEDAGOGICAL ACTIVITY

Dr. Eng. Grigor Velev graduated from 21 high school „Hristo Botev“ in Sofia in 1982, and in 1986 he also graduated from the HPMS „V. Levski“ in the town of V. Tarnovo, specialty - „Communication troops - radio and radio relay means of communication“. In 1997, the candidate acquired a master's degree at the Military Academy „G. S. Rakovski“ in Sofia, majoring in „Command staff, operational tactical, liaison troops“, and in 2018 he defended his doctoral dissertation at the Defence Institute, in the same professional field as the current competition - 5.3 Communication and computer technology.

Doctor Velev increased his qualification with specialized courses on „Installation, operation and combat use of tropospheric and radio relay stations“ in the city of Ulyanovsk, Russia (1987), a course on working with SDH, PDH, SRAL radio systems and control systems EM- OS, Italtel Sistemi in Italy (1998), digital communications course at the College of Telecommunications and Posts - Sofia (2001), SDH 1660 SM operation course and management 1320 – Alcatel in France (2004), course for the training of network managers at the Electron Progress company in Sofia (2011), etc.

Dr. Velev's professional career began in 1986, with the last fourteen years at the Defence Institute, where he held the positions: „Head of the Department of C4I Systems Development and Information Protection“ and „Director of the Systems Development Directorate C4I“. He was the head of program teams related to system analysis and design of communication and information systems, he led a team on the construction and expansion of the SCS of BA, etc.

III. ASSESSMENT OF THE CANDIDATE'S SPECIALIZED TRAINING AND ACTIVITY

Engineer Grigor Velev is a respected scientist and head of research projects in the field of communication and information systems for the needs of the Bulgarian Army. He has a very good practical training in the field of his scientific research and extensive experience in leading scientific research teams in the implementation of scientific projects in the field of telecommunications. His scientific output is in the field of construction and development of communication and information systems for the modernization of the communication and information environment of the Bulgarian Army. A large part of his research is related to practical solutions for the needs of the defence.

The candidate fully meets the minimum requirements for holding the position of „associate professor“, according to the regulatory documents.

The scientific activity of Dr. Grigor Velev characterizes him as a successful scientist, with extensive knowledge in the field of communications and the construction of communication systems for defence needs. A careful researcher and a consistent scientist, he is understanding and responsive to his colleagues when one of them needs help.

IV. ASSESSMENT OF THE CANDIDATE'S MAIN SCIENTIFIC RESULTS AND CONTRIBUTIONS

The candidate's works correspond to the professional direction „5.3 Communication and computer technology“ and are mainly focused on the specialty of communication networks and systems. In my opinion, they can be classified into the following areas:

- mobile self-organizing networks and models for their routing;
- communication systems and technologies;
- acquisition of sensor data and communication services.

Published results can be divided into scientific, scientific-applied and applied.

The candidate's scientific contributions aim enriching existing knowledge and applying scientific approaches related to the implementation of communication systems in security and defence. These may include the proposed model and approach for hierarchical cluster routing for MANET and a model of modified AODV algorithm with consideration of state parameters of intermediate devices constructing the route [I.2, II.2.12], as well as the proposed innovative approach for detection of cyber threats in cruise ships [II.2.15].

The scientific and applied contributions are in the field of communication systems and technologies, emphasizing the applied aspects of the proposed theoretical research and development. Scientific and applied contributions are the proposed approach to building departmental telecommunication networks [II.2.1, II.2.3], the analysis of technological innovations and their influence on the development of the defence strategy [II.2.14], as well as the presented in the monograph [II.2.1] telecommunication technologies, standards and principles of digital communication systems. The proposed approach for using software solutions for organizing communication

exchange between work teams in the field of communications and the provided IT services [II.2.17] can be included in this group of contributions.

The applied contributions are determined by the implementation of the research done in the design and implementation of scientific research projects and the created communication and information systems. These contributions may include the applicant's participation in the development of an innovative system using sensor data to improve situational awareness of building interiors and real-time mapping, open source honeypots research [II.2.13], the possibilities of building tools for the analysis of cyber attacks [II.3.5], as well as the developed system and technical requirements [III.1, III.5, III.7]. Work projects [III.2, III.3, III. 4] for building a departmental communication and information system, as well as programs and methods for its commissioning [II.4.1, II.4.2, III.6] are other applied contributions. In addition, in this group we may include scientific research projects with applied implementation for obtaining and providing operational information from the locality in real time from an area of a crisis situation to an operational decision-making center [II.4.3], as well as for achieving sustainability and energy autonomy of infrastructure objects with autonomous maintenance of optimal climatic conditions [II.3.5].

V. SIGNIFICANCE OF CONTRIBUTIONS TO SCIENCE AND PRACTICE

The significance of Dr. Grigor Velev's contributions can be assessed by the visibility of the published publications and, above all, by the concrete implementation of the proposed models, approaches, algorithms and others that have found a place in the implemented systems and projects in which he participates or leads.

VI. ASSESSMENT OF AUTHORSHIP CONTRIBUTIONS

The analysis of the scientific production of Dr. Grigor Velev, the language constructions used, the style of presentation of information in the publications, etc., show the authorial presence of the candidate which convinces me of their originality.

I have not noticed any plagiarism in the provided scientific works and materials.

VII. CRITICAL NOTES AND RECOMMENDATIONS

I do not find any significant gaps in the scientific works submitted for review that would affect my final assessment. I recommend Dr. Grigor Velev to direct his efforts in publishing his scientific results in publications with wider publicity and those included in the world databases such as SCOPUS, Web of Science and others.

VIII. PERSONAL IMPRESSIONS

I have known Grigor Velev for nearly 15 years and have been following his scientific career and achievements, as well as the results of our joint work on various projects at the Defence Institute. As a researcher, and later as the head of a scientific research department and directorate, he showed himself to be attentive, responsive and a good scientist for which he was respected by his colleagues. His practical knowledge in the field of communication systems and technologies was useful for everyone, especially for younger colleagues.

In his research work, G. Velev is a consistent, well-organized and thorough researcher, with scientific interests in the field of communication networks, technologies and systems applicable in security and defence.

The analysis of his scientific works, as well as my personal impressions give me reason to evaluate the candidate as a good researcher and scientist in the professional field of communication and computer technology for which he is applying.

IX. CONCLUSION

I express my belief that the applicant is a capable and sound researcher and scientist. The assessment of his scientific and practical results and contributions gives me the reason to express my positive opinion and I propose to the members of the respected scientific jury and the scientific council of the Defence Institute to vote positively for Dr. Eng. Grigor Raykov Velev to be elected to the academic „ASSOCIATE PROFESSOR“ position in the field of higher education „Technical Sciences“, professional direction 5.3 „Communication and computer technology (Communication networks and systems)“.

26.10.2023
Sofia

Member of Jury: /S/
/Professor Dr. Eng. Rosen St.Iliev/