

## STANDPOINT

on the competitive procedure for the vacant academic position of “Professor,” professional field 5.2. “Electrical Engineering, Electronics, and Automatics,” specialty 02.21.10 “Application of the Principles and Methods of Cybernetics in Various Scientific Fields,” in the “IT for Security” Department of the Institute of Information and Communication Technologies, Bulgarian Academy of Sciences.

Announced in Bulgaria’s *State Gazette* # 7 of 24 January 2014

Candidate: **Todor Dimitrov Tagarev**, PhD, Associate Professor

Member of the Scientific Jury:

Professor in the Faculty of Cybernetics **Vladimir Anatolievich Zaslavskiy**, Doctor of Technical Sciences, Taras Shevchenko National University of Kyiv

### 1. General Information and Biographical Data

Dr. Tagarev was born on 18 April 1960. He is Bulgarian citizen, married, with three children. He received solid education in Bulgaria and had the opportunity to enhance his qualification in colleges and universities in Germany, France, and the US, and was often distinguished for excellent results in his studies. As one of the best Bulgarian specialists, he had the opportunity to undertake full time PhD studies in the “N.E. Zhukovsky” Air Force Engineering Academy in Moscow, where he successfully defended his PhD dissertation. The timely accomplishment of the PhD studies indicates the considerable intellectual capacity of the candidate.

Dr. Tagarev is actively involved in educational activities in the “G.S. Rakovski” National Defence Academy, Sofia University and elsewhere in Bulgaria and abroad, and is a holder of a ‘Docent’ (Associate Professor) Diploma.

He is fluent in foreign languages, which is an important factor in his international research activities, cooperation and exchange, leading to enduring professional contacts, mutual understanding, and grasp of the culture of various countries.

### 2. General Description of the Publications and Other Materials Presented for the Procedure

#### *Publications*

Results of Dr. Tagarev’s research are published in various international and Bulgarian outlets: monographic publications, articles in well-known journals, conference proceedings, and popular magazines. The considerable number of scientific publications by Dr. Tagarev indicates a fundamental importance of the underlying research and high activity. Monographs with his contributions have been translated in various languages and published abroad, and that confirms their currency and importance.

#### *Citations*

Scientists and researchers from numerous countries and research areas have used and referred to Dr. Tagarev’s publications. This is visible in 23 references found in the SCOPUS database, 133 citations in his Google Scholar profile, and other bibliographic sources provided in the submitted documentation and easily found online. Based on the full citation list, which does not include publications of the candidate and his respective co-authors, one can calculate an

**h-index** (a well established and widely recognised citation metrics) of **11**, which is a solid indication of the novelty and impact of his scientific production, typical for a professor.

The website of “Information & Security: An International Journal” (of which Dr. Tagarev is Editor-in-Chief) is frequently visited by researchers and practitioners from the fields of IT and security, as well as by doctoral and other post-graduate students.

### *Research projects*

Associate professor Tagarev has a solid track record in conducting scientific research with clearly stated objectives, anticipated results and strict timelines. In a considerable number of projects – 32 – he acted in a leadership role, and many of these projects were international and/or of interdisciplinary nature.

I would like to mention also the beneficial cooperation between Dr. Tagarev and Dr. Velizar Shalamanov. Their joint research work, the identification and shaping of research trends on national security issues, the formation of research teams, and their original scientific publications can serve as an example of team work. They were among the key professionals that initiated the organization of international conferences of AFCEA (the Armed Forces Communications and Electronics Association) and the establishments of its chapters in Bulgaria. The creation of the AFCEA Sofia Chapter served as an example of cooperation among governments, research organizations and high-tech companies, and stimulated the creation of an AFCEA Chapter in Ukraine.

Dr. Tagarev conceptualized a number of projects and meetings on security issues, which brought together practitioners from the security sector of Ukraine, as well as academics from universities of Ukraine and other countries.

### **3. General Characterization of the Research and Application-oriented Activities of the Candidate**

Dr. Tagarev is a well known and respected expert in the fields of strategic planning, structural transformations in the security sphere and methods of decision making based on the system approach and its principles. He has made a significant contribution to the study and the understanding of critically important systems as components of national security, the importance of guaranteeing their functioning and protection in situations evolving according to various scenarios and under various influences. In the fields of planning and creating an effective system for national defence, Dr. Tagarev successfully identified and clearly formulated new tasks [e.g. articles 3, 12, 28, 29], some of which have been already strictly formalized [articles 22, 23, 32, 33].

Dr. Tagarev participated in numerous international conferences and projects, where he has often been a keynote speaker and team leader. He has a distinct ability to accumulate experience and systematize knowledge in the creation of structural decision alternatives. In the formalization of decision tasks and algorithms, he cooperates with mathematicians and operations research experts, which allows to automate the respective studies with account of operational data, system and technical constraints and factors. An important feature of his research and practical work is the emphasis on competencies and transparency of decisions, thus facilitating the prevention of corruption in the activity of security sector organizations.

An important element of his application-oriented activities is the publication of “Information & Security: An International Journal.” This journal publishes advanced research works of key practical significance, that have been presented and accepted at international conferences, including conferences that took place in Ukraine.

Overall, Dr. Tagarev is well known in Ukraine – both in the security community and the academic community dealing with advanced cybernetics issues of considerable practical importance. A number of his monographs [M 2, M 9, Sb 3] have been translated and published into the Ukrainian language. He has published two articles [8, 10] in “*Science and*

*Defence*” – the scientific journal of the Ukrainian Ministry of Defence, and two other articles [2, 3] – in the journal “*Radioelectronic and Computer Systems*,” published by the Kharkiv Aerospace University.

He is regular participant in scientific and applied conferences conducted in Ukraine, with proceedings in English and Ukrainian published by the defence ministry, the National Institute for Strategic Studies, the National Institute on the Problems of International Security, the Ukrainian Centre for Economic and Political Studies named after Olexander Razumkov, etc.

Dr. Tagarev was a senior member (co-chair or vice-chair) of and plenary speaker to scientific conferences in Ukraine such as the First International Workshop on Critical Infrastructure Safety and Security (CrISS-DESSERT 2011), Dependable Systems, Services & Technologies (DESSERT 2012 and DESSERT 2014).

#### **4. Main Scientific and Scientific-Applied Achievements**

Monographs with substantial contribution by Dr. Tagarev as author and editor [M5, M6], monographic studies [Mi 12, Mi 13] and articles [3, 8, 10, 11, 12, 25, 29] attract considerable interest by the national security experts. In a systematic manner, they examine key problems of organizational development, the development of national security systems and other critical systems on the basis of real-world data and scenarios for the evolution of external and internal factors and interactions, mathematical models and methods, thus contributing to the scientific knowledge and advancement of the practice in treating key issues of national security.

Of particular interest are the new results in delineation of ‘context’ and ‘situational’ scenarios [M 5, Mi 12; articles 22, 28], the approach to creating a capability taxonomy and its implementation, and the creation of a library of ‘building blocks’ [M 6], the formalization of the optimization problem in long-term defence planning and the analysis of its applicability [article 32], the creation and approbation of a model for ‘right-sizing’ of force structures [article 33].

Dr. Tagarev’s results in the field of critical infrastructures involve a novel way of structuring the problem of analysis of criticality and resource allocation for protecting critical infrastructures, with account of network interactions among different types of actors, and the exploration of suitable contexts for the practical implementation of the concept of critical infrastructure protection [article 34]. Of significant value in this respect is the study of possible methods to support decision making and the elaboration of the need for international cooperation via a knowledge portal [article 25].

Among the novel results are the works of the author focusing on the integrity and transparency of decision-making processes as a key tool in preventing corruption, in particular in security and defence organizations [M 2].

#### **5. Scientific and Practical Importance of the Candidate’s Achievements**

The goal-oriented scientific research, consultancy and governmental activity of Dr. Tagarev led to the creation of the Centre for Security and Defence Management – an important step in the creation of a team and a network of like-minded professionals.

Results of the candidate’s research are used by the Faculty of Cybernetics of Taras Shevchenko National University of Kyiv in courses on analysis and optimization of risks in complex systems, system and information security. Articles published in “*Information & Security*” and other publications are used by post-graduate students in exploring the problems of critical infrastructure protection, systematizing sources of risks, scenarios, and studying their broader economic and societal impact. Such models and methods of research serve as a basis for understanding the principles and the procedures for decision making in the security sphere. “*Connections: The Quarterly Journal*,” where Dr. Tagarev is member of the Editorial

Board, is also received by our university, and its English and Russian language versions are used in the research work of our students.

The appointment of Dr. Tagarev as a minister of defence of Bulgaria in 2013 also speaks highly of his professionalism on issues of security and defence.

## **6. Recommendations**

Methods and models, elaborated by Dr. Tagarev, are of high interest for security professionals. In my opinion, it can be recommended that in the future, and under the leadership of Dr. Tagarev, these methods and models are incorporated in specialized decision support software and systems, thus facilitating their implementation in security decision making in conditions of increased risks, dynamic environment and possible alternative scenarios of evolution.

## **CONCLUSION**

On the basis of the scientific publications, presented to the jury, the scientific and applied achievements they reflect, and the established correspondence of the presented documents with the requirements of the Law on Development of the Academic Cadre and the respective regulations at national and institutional level, I strongly recommend that the candidate Associate Professor Dr. Todor Dimitrov Tagarev is appointed at the academic position of "Professor" in the professional field 5.2. "Electrical Engineering, Electronics, and Automatics," specialty 02.21.10 "Application of the Principles and Methods of Cybernetics in Various Scientific Fields."

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