

# REVIEW

of the application package submitted for participation in the competition for a **tenured track position "Associate Professor"**, in the professional area **"5.3 Communication and computer technology"**, the academic course on **"Optical cable lines and systems"**, to the Department of **Communication Techniques and Technologies** at FITA of TU-Varna Announced in the Bulgarian State Gazette №31/19.04.2022.

Applicant: **Senior Assistant Professor Stella Savova Kostadinova, Ph.D.**

Member of the scientific panel: **Prof. Todor Dimitrov Ganchev, PhD**

## 1. General provisions and biographical data

The competition for the tenured position "Associate Professor" was opened by the Council of the Department of Communication Engineering and Technologies (KTT), approved by the Council of the Faculty of Computer Engineering and Automation (FITA) and the Academic Council of the Technical University of Varna (TU-Varna). Senior Assistant Professor Stella Savova Kostadinova, Ph.D., is the only candidate who applied for this position.

Stella Kostadinova graduated in 1988 from the Moscow Electrotechnical Institute of Communications (MEIS), Russia, as an Electrical Engineer, currently equivalent to a Master's degree. The modern name of the university is Moscow Technical University of Communications and Informatics (MTUSI). Stella Kostadinova began her studies at VMEI-Varna (currently TU-Varna) and continued her education in Moscow after completing her first academic year.

In 2015, Dr. Kostadinova obtained a Ph.D. in the professional field 5.3 "Communication and computer technology" at TU-Varna, with a scientific specialty "Communication networks and systems", code 02.07.20. The topic of her Ph.D. thesis, "Researching the characteristics and the quality of service in optical access networks of a new generation based on PON technologies" is closely related to the academic course on "Optical cable lines and systems" under the current competition.

After graduating from the University, Stella Kostadinova worked at Mega RUD Company "Black Sea", BTC, Varna, and in 1989–2009, she successively held an Engineer, Head of the service, and Head of the "Digital Network" department positions.

From 2011–2019, Stella Kostadinova served as an "Assistant Professor", and from May 2019 until now as a "Senior Assistant Professor" at the Department of KTT of TU-Varna. Her teaching duties included laboratory exercises and lectures in four academic courses, which are thematically close to the topic of the current competition.

## 2. General description of the materials presented

In the application package submitted for participation in the competition for a tenure track position "Associate Professor", Stela Kostadinova provided 34 scientific publications. Among these are 4 articles in peer-reviewed scientific journals and 30 reports presented at scientific conferences in Bulgaria and abroad. All publications are prepared in co-authorship with

colleagues from TU-Varna and/or TU-Sofia, TU-Gabrovo, and RU "Angel Kanchev", which indicates the candidate's teamwork skills and the ability to conceive successful collaborations.

To cover the minimum national requirements under the group of indicators "B", Dr. Kostadinova has submitted a list of 10 publications indexed in Scopus, grouped thematically as equivalent to habilitation work. This includes 3 articles in scientific journals and 7 reports presented at scientific conferences. In one of these publications, Dr. Kostadinova is the first author; in 5 she is the second; in 1 she is the third; in 2 she is the fourth author; in 1 she is the fifth author. Assuming that the order of the authors indicates the candidate's contribution, it can be noted that Dr. Kostadinova made a significant contribution to the preparation of these publications.

To satisfy the requirements under the group of indicators "G", Dr. Kostadinova has submitted two lists with 24 publications. Specifically, a list of 12 publications was submitted under the indicator "G.7", i.e., publications indexed in the Scopus database. Among these 12 publications, one is an article in a peer-reviewed scientific journal, and the remaining 11 are reports presented at scientific conferences. In 6 of these publications, Dr. Kostadinova is the second author; in 5 she is the third author; in 1 she is the fourth author. According to indicator "G.8", she presented a list of 12 publications that are not indexed in the world databases with scientific literature. Dr. Kostadinova is the first author in 1, second in 1, third in 8, and fourth in 2 publications.

Following the requirements of ZRASRB and its bylaws, Dr. Kostadinova has provided a list of 9 publications used for the acquisition of her Ph.D. degree in order to certify the absence of overlap with the publications presented in the current competition.

Acquainting the abstracts and the full text of the submitted publications, I consider them for evaluation in the above volume. A summary of the scientific contributions and the developments reported in these publications is presented in Section 5 of this review.

From the group of indicators "D", to fulfill the indicator "D.12" requirements, Dr. Kostadinova presented a list with 28 citations from other authors. An up-to-date crosscheck in the Scopus database (as of 08/31/2022) shows 33 citations and Scopus h-index = 3 with excluded self-citations for all co-authors.

Concerning the indicator "Zh", according to the current bylaws of TU-Varna, Dr. Kostadinova has provided information about 165 hours of lectures held over the past three years. The presented materials prove multiple over-fulfillment of the institutional requirements for this indicator.

A summary of the points assigned for the individual groups of indicators is available in Table 1. A comparison of the points calculated based on the provided evidence with the minimum national and institutional requirements for the academic position of Associate Professor is presented as follows.

The comparison presented in the table for the scientific field "5. Technical Sciences" shows that Dr. Kostadinova fulfills the minimum national requirements for the acquisition of the tenured track position "Associate Professor" according to the groups of indicators "A", "B" and "G" and significantly exceeds the indicator "D", as well as the institutional requirements of TU - Varna according to indicator "Zh".

**Table.** Correspondence between the indicators set in the minimal national and institutional requirements for occupying a tenured track position "Associate Professor", in the groups of indicators for the scientific area "5. Technical Sciences", and the actual scores reported by the applicant.

A set of metrics	Content by indicators	Minimum requirements for the acquisition of tenured track "Associate Professor."	Points S. Kostadinova, PhD
A	Indicator 1	50	50
B	Indicator 3 or 4	100	135
G	Amount of performance from 5 to 11	200	216
D	Amount of indicators from 12 to 15	50	280
ZH	Indicator 29	30	165
	<b>Total by all indicators</b>	430	846

### 3. A general description of the RTD activity of the applicant

The topic and the number of scientific publications of Dr. Kostadinova in the current competition show a sustained interest in researching the possibilities of improving the noise suppression and reliability of communication systems. Among the 34 publications accepted for review, 22 (approximately 65%) are indexed in Scopus. A summary of the contributions in the works of Dr. Kostadinova is presented in Section 5. Most of the contributions are of a scientific and RTD nature.

According to the lists provided, Dr. Kostadinova participated in 6 projects funded by the research sector of TU-Gabrovo. Evidence materials for her participation in projects at TU-Varna have not been provided.

No evidence was provided for her participation in activities related to international teaching mobility.

### 4. Assessment of the pedagogical qualification of the applicant

The pedagogical activity of Dr. Kostadinova spans a nearly 11-year period -- from the appointment of "Assistant Professor" at the Department KTT in TU-Varna in May 2011 until now. According to the submitted report, Dr. Kostadinova has conducted 165 lecture hours over the past three years. This teaching duty covers 4 disciplines, included in the "Bachelor" degree curricula of ICT and TKMT.

According to the information provided by the applicant, during her teaching career, Dr. Kostadinova supervised the diploma theses of 40 graduates, including 27 who obtained bachelor's degrees and 13 who obtained master's degrees. I consider the abovementioned number of supervised graduates a reliable indicator of the successful transfer of Dr. Kostadinova's experience to the students.

### 5. Major scientific and RTD contributions

I believe the publications presented in the competition reflect a significant volume of research and RTD activity. Dr. Kostadinova has presented in a synthesized form the most important contributions for each publication. From my point of view, these contributions can be summarized as:

- Study of methods, algorithms, and tools for estimating the parameters of communication channels and/or assessing the impact of disruptive effects on incoming and outgoing information flows.
- Evaluation of the parameters of optical transmission networks and analysis of the algorithms' computational efficiency in determining traffic data categories.
- Synthesis and analysis of algorithms for identifying voice commands using artificial neural networks.

Contributions in the presented publications can be attributed to the categories: experimentally obtained new data, proving with new means of already existing theories and hypotheses and confirmatory data, creation of new algorithms and models, developed methodologies for analysis, and improved evaluation of communication channels as well as of their noise resistance.

Based on the list of authors for most of the publications and my impressions of the candidate, I agree that Dr. Kostadinova made a significant contribution to these results.

## **6. Significance of contributions to practice**

Regarding the significance of the contributions formulated in the candidate's publications, I judge by the number of citations in papers by independent authors and the participation in scientific research projects:

- (1) Dr. Kostadinova participated in 6 research projects, which is a good indication of the practical benefit of her research and RTD activities;
- (2) The 33 citations from independent authors in publications visible in the Scopus database indicate that Dr. Kostadinova's work has attracted the attention of researchers working on similar topics.

## **7. Critical notes and recommendations**

I find the documentation well organized and convenient for fact checking. I have no critical comments on the candidate.

My only recommendation to Dr. Kostadinova is to consider allocating some efforts to establishing her own research group, working towards attracting financing from national and international research funds. These efforts would largely contribute to supporting the elevation of TU-Varna in the national and international academic rating systems and Dr. Kostadinova's career development.

## **8. Personal impressions and opinion of the reviewer**

My impression of the candidate's competencies and performance agrees with the conclusions based on the application package. From the analysis of her research and teaching activities and the accumulated personal impressions, I confirm that Dr. Kostadinova possesses the necessary organizational and professional experience and a high level of competence. These qualities can be helpful to for TU-Varna in solving engineering problems, training and research activities, and designing and operating communication circuits and facilities.

## CONCLUSION

The submitted application materials provide an opportunity for an objective and multifaceted assessment of the qualities of Senior Assistant Professor Stella Savova Kostadinova, Ph.D. A comparison of the submitted documents with the uniform national requirements and TU-Varna bylaws for appointment to the tenure track position "Associate Professor" unequivocally proves that the minimum requirements are satisfied, and for indicator, "Zh" are significantly exceeded.

In conclusion, the abovementioned motivates me to support Dr. Kostadinova, emphasizing that she undoubtedly possesses the necessary qualities and qualifications to occupy the position of "Associate Professor" in professional direction 5.3 "Communication and computer technology".

Date: August 31, 2022.

Reviewer: \_\_\_\_\_

/Prof. Todor Ganchev, PhD /