

OPINION

Concerning scientific works submitted for participation in competition for awarding the academic position of “Associate Professor” in professional field 5.3. Communication and Computer Engineering, scientific specialty “Communication Networks and Systems”, (discipline “Optical cable lines and systems”) announced in the State Gazette, issue 31/19.04.2022 with candidate Ch. Assist. Prof. Stela Savova Kostadinova, PhD
Member of the scientific jury Assoc. Prof. Krasen Kirov Angelov, PhD,
Technical University of Gabrovo

1. General characteristics of the candidate's research and scientific-applied activity

Ch. Assist. Prof. Stela Savova Kostadinova, PhD, participated in the competition for academic position “Associate Professor” with a total of 34 publications, distributed according to the relevant groups of indicators as follows: indicator B.4 – 10 publications, indicator Г.7 – 12 publications. and indicator Г.8 – 12 publications.

The candidate's publications can be classified as follows:

- 22 scientific publications in editions, which are referenced and indexed in the world-famous database of scientific information Scopus;
- 12 scientific publications in non- referenced peer-reviewed journals or edited collective volumes;
- 8 publications are in Bulgarian language and 26 – in English language;
- 34 publications are in co-authorship, and in 2 of them the candidate is the first author.

The candidate's scientific publications can be divided into the following thematic areas:

- Application of artificial intelligence systems (artificial neural networks) for analysis, identification, classification and optimization of signals and teletraffic flows in communications;
- Optical transmission networks;
- Digital signal filtering;
- General research in the field of communication networks and systems.

Fourteen (14) of the candidate's scientific publications are cited in a total of 28 publications by other authors in scientific publications, referenced and indexed in world-famous databases with scientific information (indicator Д.12).

The candidate has participated in 6 research projects at the University Center for Scientific Research and Technology of the Technical University of Gabrovo.

2. Assessment of the pedagogical preparation and activity of the candidate

Ch. Assist. Prof. Stela Kostadinova, PhD, has been working in the Department of Communication Equipment and Technologies at the Technical University of Varna since 2011, gradually passing through the positions of “Assistant” (from 2011 to 2019) and “Chief Assistant” (since 2019).

Over the last 5 years, Ch. Assist. Prof. Stela Kostadinova, PhD, led laboratory exercises in the disciplines “Cable Communication Lines”, “Telecommunication Networks”, “Switching, Multiplexing and Internet Technologies”, “Digital Transmission Systems”, “Introduction to the Specialty”, “Optoelectronics and Laser Technology” and “Optoelectronics and optical communications”. For the same period, the candidate is a lecturer (indicator Ж.29) in the disciplines “Cable Communication Lines”, “Optical Cable Lines and Systems”, “Digital Transmission Systems” and “Communication Circuits” in the Professional bachelor’s Degree,

Bachelor's Degree and Master's Degree for the specialties “Information and Communication Technologies”, “Telecommunications and Mobile Technologies” and “Electronics”.

No data were presented on the participation of Ch. Assist. Prof. Stela Kostadinova, PhD, in the development of curricula from the study programs for specialties at TU – Varna.

For the period from 2014 to now, Ch. Assist. Prof. Stela Kostadinova, PhD, was the supervisor of a total of 40 graduates, of which 13 in the Master's Degree and 27 in the Bachelor's Degree.

3. Main scientific and scientific-applied contributions

Ch. Assist. Prof. Stela Kostadinova, PhD, submits as a habilitation thesis 10 equivalent publications, referenced and indexed in the world-famous database of scientific information Scopus (indicator B.4).

I accept the candidate's contributions in the presented scientific works. They can be defined as scientific-applied and applied.

The contributions of a scientific-applied nature are the following:

- A methodology is proposed for statistical analyzes of various types of information arrays, for the assessment of disturbing effects on electrical signals of incoming and outgoing traffic flows in communication systems [3.4-9];
- An innovative approach to apply discriminant analysis to identify electrical signals subjected to uniform and periodic noise levels without and with FFT pre-processing is presented [3.4-7];
- The possibility of applying artificial intelligence in the analysis of M/M/c/k traffic data was investigated in order to define their category in relation to serviced circuits with different number of server stations [3.4-5];
- Types of classifiers for quantitative identification of teletraffic devices have been proposed and investigated [3.4-1].

Contributions of an applied nature include:

- Artificial neural networks for voice command recognition in voice control systems have been analyzed and synthesized [3.4-8];
- An assessment was made regarding the computational efficiency of artificial neural networks in the analysis of transmitted information flows to determine the type of defined traffic categories using artificial intelligence [3.4-6];
- A virtual instrument was developed using LABVIEW to test the performance of NFIS classification [3.4-2];
- Structures of adaptive neural-fuzzy interface systems for noise identification are investigated [3.4-4];
- A laboratory model of a real optical DWDM signal transmission network has been created [3.4-10];
- The delays in an optical transmission network with a wave seal have been investigated and analyzed [3.4-10].

4. Significance of contributions to science and practice

I accept the stated contributions from Ch. Assist. Prof. Stela Kostadinova, PhD. They are the result of the candidate's scientific research activity and are widely popularized through scientific publication activity. Their significance is proven by the registered large number of citations and it is evident that Ch. Assist. Prof. Stela Kostadinova, PhD, has a “Hirsch factor” $h = 3$ in the Scopus database.

The results of the research and scientific-applied activity of Ch. Assist. Prof. Stela Kostadinova, PhD, satisfy the national quantitative indicators as well as the requirements of the Technical University of Varna to hold the academic position “Associate Professor”, respectively grouped in indicators A, B, Г, Д and Ж, as follows:

- Group of indicators A (at least 50 p.) – 50 p.;
- Group of indicators B (at least 100 p.) – 135 p. (indicator B.4);
- Group of indicators Г (at least 200 p.) – 216 p. (indicators Г.7 and Г.8);
- Group of indicators Д (at least 50 p.) – 280 p. (indicator Д.12);
- Indicator Ж.29 (at least 30 p.) – 165 p.

5. Critical remarks and recommendations

I have no significant remarks on the presented materials, but I can note the following: the formulated contributions are not summarized as scientific-applied and applied.

The candidate's research and scientific-applied activity is undoubtedly at a high level. Nevertheless, I can formulate the following recommendations to the candidate:

- regardless of the participation and joint work in scientific research teams on projects, the candidate should also focus on independent publications, as well as publishing in international journals with an Impact Factor
- I recommend the candidate to seek wider opportunities to participate in international and national scientific projects, as well as opportunities for practical implementation in business and monetization of the results of his research and applied developments.

CONCLUSION

The documents submitted by the candidate in a competition for the academic position of “Associate Professor” meet the requirements of the Law on the Development of Academic Staff in the Republic of Bulgaria and the Regulations for the terms and conditions for the occupation of academic positions at the Technical University of Varna. The minimum scientometric indicators for occupying the academic position “Associate Professor” are fulfilled.

Based on the acquaintance with the presented scientific works, their significance, the scientific, scientific-applied and applied contributions contained in them, I find it reasonable to propose Ch. Assist. Prof. Stela Savova Kostadinova, PhD, to be awarded the academic position of “Associate professor” in the professional field 5.3. Communication and computer engineering, specialty “Communication networks and systems” (discipline “Optical cable lines and systems”).

Заличена информация
по Регламент (ЕС)
2016/679

05.09.2022

Member of the scientific jury:

/ Assoc. Prof. Krasen Angelov, PhD/