

OPINION

**on a competition for an academic position „Associate Professor“
in the professional field 5.3. Communication and computer technics (Microwave technics
and communications),**

**The competition is announced by Faculty of Physics Sofia University "St. Kliment Ohridski "
in SG, issue 21, dated 15.03.2022**

Author of the opinion: **Assoc. Prof. Dr. Aleksandar Kostadinov Tsenov, University of telecommunications and posts, professional field 5.3. Communication and computer technics (Communications networks and systems)**, in his capacity as a member of the scientific jury for the competition according to Order № RD-38-198 / 27. 04. 2022 of the Rector of Sofia University.

Candidate in the competition:

Dr. Hristomir Hristov Yordanov, Technical University of Sofia,

I. Overall description of the submitted materials

1. Details of the application

The documents submitted by the competition by the candidate comply with the requirements of the Bulgarian legislation and the Regulations for the terms and conditions for acquiring scientific degrees and holding academic positions at Sofia University "St. Kliment Ohridski ".

For participation in the competition, the candidate Dr. Hristomir Yordanov presented a list of a total of 10 publications on indicator "B" and 12 publications on indicator "T", incl. 22 publications in Bulgarian and foreign scientific publications and scientific forums, 0 studies, 0 monographs, 1 book, 2 certificates and patents, 0 textbooks and teaching aids. There are also 6 other documents (certificate from the employer for work experience, information for participation in projects, financing organization or project assignor, references and reviews, awards and other relevant evidence) supporting the candidate's achievements.

In his CV, the candidate has provided detailed information about his teaching and research activities. Most of the candidate's achievements are not supported by attached documents, but they are available in the information space and prove the level of his teaching and research activities.

2. Details of the candidate

Dr. Hristomir Yordanov obtained a bachelor's degree in Radiocommunications at the Technical University - Sofia and a master's degree in Microwave Engineering at the Technical University - Munich, Germany. Subsequently, he defended his doctorate and obtained a doctorate at the Technical University - Munich.

In 2011 he returned to Bulgaria, where he worked as an assistant in the Department of Radio Engineering and Video Technologies at the Faculty of Telecommunications at the Technical University of Sofia, and then held the academic position of Chief Assistant in the Department of Technology and Management of Communication Systems at the same faculty.

During the years of his academic development Dr. Hristomir Yordanov actively works on research projects under various programs, incl. under the Marie Curie program of the European Commission.

In 2019, he won a Fulbright scholarship and worked for 6 months at the University of Berkeley, USA as a guest researcher and guest lecturer.

Since 2012 he has been teaching at the Faculty of German Engineering Training and Industrial Management (FaGIOPM) in the disciplines Communications and Networks, Embedded Communication Networks, Communication Systems. Since 2017 he has held the position of Assistant Dean for Research at the same faculty, and under his leadership or coordination in the faculty have been implemented 3 research projects with international participation.

3. General characteristics of the scientific works and achievements of the candidate

The candidate in the announced competition has submitted for participation 10 publications in refereed publications (indexed in Scopus and Web Of Science) and 12 publications in other scientific publications and forums.

The candidate's publications are oriented in several directions:

The first of them covers methods for modeling electromagnetic fields and solving optimization problems with them. The second direction, in which the candidate has achieved serious achievements, is the basis of the doctoral dissertation, defended at the Technical University - Munich, namely: optimization methods and approaches for the implementation of communications in and between integrated circuits. His achievements in this field include the study of parasitic parameters in the propagation of signals in integrated buses and methods for ensuring error-free transmission of information in integrated buses by applying optimized coding. To these studies are added the development of methods for structuring and research of integrated antennas and wireless communication channels in integrated structures.

The next area of research covers the issues related to the research of materials for the manufacture of integrated antennas (including pads for printed antennas). The research also includes the development of models for determining the interference in the operation of integrated antennas.

In recent years, Dr. Yordanov has focused his research on the possibilities of using intelligent systems (neural networks, artificial intelligence) to recognize objects through complex signals.

It should be noted that the submitted publications of the candidate under criterion “B” have been cited 80 times, and two of them have 25 and 27 citations, respectively. The publications on indicator „Г“ have been cited more than 100 times. This is a clear indicator of the scientific achievements of Dr. Yordanov.

From what has been said so far, it can be unequivocally concluded that the presented scientific papers fully meet and even seriously exceed the minimum national requirements and respectively the additional requirements of Sofia University “St. Kliment Ohridski ” for holding the academic position of “Associate Professor” in the scientific field of “Technical Sciences”, professional field 5.3“ Communication and Computer Technics”.

The works of the candidate have not been used and do not repeat those from previous procedures for acquiring a scientific title and academic position.

Plagiarism detection software is applied to the candidate's works. In none of the works was registered illegal use of other people's works and scientific contributions.

4. Characteristics and evaluation of the candidate's teaching activity

The teaching activity of the candidate, Dr. Yordanov, began as a part-time lecturer at FDIBA as an assistant in the discipline "Communications and Data Processing". Subsequently, with the academic position of Chief Assistant in the Department of Radiocommunications and Video Technologies, and later in the Department of Technology and Management of Communication Systems, Dr. Yordanov joined the training of students at the Faculty of Telecommunications.

In FDIBA he became a leading lecturer in Embedded Communication Networks, teaches in the discipline Electromagnetic Fields, Communication Technology for Informatics.

Feedback on his teaching has been extremely positive.

5. Content analysis of the scientific and scientific-applied achievements of the candidate, contained in the materials for participation in the competition

The main contributions of the candidate, stated in the submitted for participation in the competition may include:

- New hypothesis, theoretically proven - assumption of the presence of isotropic radiators in the theoretical analysis of radio communications. It is proved that although isotropic antennas do not exist, their application in the theoretical study of antenna arrays is applicable to a practical approach for connecting antennas;
- Method for extraction of network models with concentrated elements for distributed microwave circuits by system identification;
- Network model of ultra-broadband, intra-chip wireless connection;

- Method for reducing elements of communication circuits for wireless transmission;
- An effective method for reducing the size of antennas on a chip and estimating the power of interference in the antenna port;
- Method for embedding built-in antennas in CMOS pads;
- Method and solutions for correction of the influence of the density of inert materials on data for measuring their humidity.

It should be noted that the submitted publications of the candidate under criterion “B” have been cited 80 times, and two of them have 25 and 27 citations, respectively. The publications on indicator „Г“ have been cited more than 100 times. This is a clear indicator of the scientific achievements of Dr. Yordanov.

Most of the publications are co-authored with scientists from around the world, which clearly emphasizes his reputation as a leading scientist in the field.

6. Critical remarks and recommendations

I am impressed by the scientific production of Dr. Yordanov, with which he participated in the competition for the academic position of "Associate Professor". I have no critical remarks on the works of Dr. Yordanov, which are recognized by the world scientific community. The only recommendations for him would be not to reduce his activity, to continue to seek and offer innovations in the scientific field in which he works with great desire.

7. Personal impressions of the candidate

I have known Dr. Hristomir Yordanov for more than 10 years. I can only express my satisfaction with the contacts with him, and each time I managed to learn something from him, both professionally and personally. I believe that Dr. Yordanov has the potential to achieve a very high scientific and academic level in his development.

8. Conclusion on the application

After getting acquainted with the materials and scientific works presented in the competition and on the basis of the analysis of their significance and the scientific and scientific-applied contributions contained in them, I confirm that the scientific achievements meet the requirements of the Bulgarian legislation and the respective Regulations of Sofia University “St. Kliment Ohridski ”for the candidate for the academic position“ Associate Professor ”in the scientific field and professional direction of the competition. In particular, the candidate satisfies the minimum national requirements in the professional field and no plagiarism has been established in the scientific papers submitted at the competition.

I give my positive assessment of the candidacy.

II. OVERALL CONCLUSION

Based on the above, I recommend the scientific jury to propose the position of “Associate Professor” in the professional field 5.3 Communication and Computer Technics at the Faculty of Physic at Sofia University "St. Kliment Ohridski" to be occupied by Dr. Eng. Hristomir Hristov Yordanov.

Date: 27.06. 2022 г.

Member of the jury: .



(Assoc. Prof. Dr. Aleksandar Tsenov)