

## OPINION

in a competition for the academic position "Associate Professor" in the professional field

**5.3 Communication and computer technology (Microwave technology and communications), published in the State Gazette, № 21/15.03.2022 for the needs of Sofia University "St. Kliment Ohridski "(SU), Faculty of Physics**

by Prof. DSc Eng. Galina Petkova Cherneva, "Todor Kableshkov" University of Transport - Member of a Scientific Jury, according to Order № RD-38-198 / 27.04.2022 of the Rector of Sofia University.

In this competition for the occupation of the academic position "Associate Professor" in the professional field 5.3. Communication and computer technology (Microwave technology and communications), participates as the sole candidate:

**Chief Assist. Prof. Eng. Hristomir Hristov Yordanov, PhD.**

### **I. General description of the presented materials**

The application materials, presented by the candidate Dr Hristomir Yordanov, involve 22 publications, of which:

- 10 publications in peer-reviewed and indexed international journals in Scopus and Web of Science, equivalent to a monograph;

-1 book, based on the PhD thesis, "Wired and Wireless Inter-Chip and Intra-Chip Communications"

- 5 scientific publications in peer-reviewed and indexed international journals in Scopus;

6 publications in journals and collections with scientific reviewing.

All publications are in English.

The following classification can be made for the scientific papers.

According to the place of publication, among the more major publications are articles in IEEE Microwave Magazine, IEEE Transactions on Components, Packaging and Manufacturing Technology, papers presented at the IEEE Conference on Antenna Measurements Applications, European Microwave Conference, etc.

According to the number of authors, 3 publications and the book are independent, and the rest are co-authored. At 13 publications the candidate is the first author and at 3 - the second.

The number of citations to the applicant's publications is 6 in scientific publications, referenced and indexed in the world known databases of scientific information (Scopus)

But it is noteworthy that in Scopus Dr. Yordanov has 170 citations and an h-index 8.

## **2. Biographical data of the candidate**

Dr Hristomir Yordanov graduated in 2002 as a Bachelor's degree in Radio communications at Technical University of Sofia. He graduated in 2006 as a Master of Microwave technology at Technical University of Munich Germany. In 2011, after the successful defence of the dissertation "Wireless and wired communication between integrated circuits" Eng. Yordanov received an educational and scientific degree "Doctor" at the same university.

During his studies in Germany Eng. Yordanov developed simulation software for the design of microelectromechanical systems (MEMS) at the Institute for High Frequency Engineering at the Technical University of Munich, where he was a research associate in the period 2006-2010.

From 2011 to 2015 Dr. Yordanov is working on a project under the Marie Curie Program of the European Commission at the Technical University of Sofia. In the period 2014-2016 he is an assistant in the Department of Radio Engineering and Video Technologies at the Faculty of Telecommunications at the Technical University of Sofia. From 2017 so far Dr. Yordanov is a Chief assistant at the same faculty, as well as Assistant Dean for Research at the Faculty of German Engineering Technology and Industrial Management at the Technical University of Sofia. During the period 2019-2020 Dr. Yordanov was a guest researcher in the Fulbright program at the Berkeley Wireless Research Center, where he teaches "Theory and Practice of Antennas". It is noteworthy that his entire career is related to research and development in the field of Microwave technology and communications.

## **3. Characteristics of the applicant's scientific production**

Execution of the main indicators for the professional field 5.3. are calculated in the presented below Table 1.

All scientific works have been used only for the current competition and are in its area.

The works are with significant theoretical and applied contributions, and have been published in prestigious international issues.

I did not find any plagiarism in the peer-reviewed publications.

Table 1

<b>Group of factors</b>	<b>Minimum score of points</b>	<b>Applicants score of points</b>	<b>Score of points as per major factors from each group</b>
<b>A</b>	50	<b>50</b>	<b>50</b>
<b>B</b>	100	<b>135,57</b>	<b>B4. – 135,57</b>
<b>Г</b>	200	<b>215,71</b>	<b>Г6. -30</b>
			<b>Г7. - 105,71</b>
			<b>Г8. - 80</b>
<b>Д</b>	50	<b>60</b>	<b>Д12. - 60</b>
<b>Total</b>	400	<b>461,28</b>	

It can be seen that the candidate's points (461,28 points) significantly exceed the required minimum number of 400 points for this academic position.

I accept the publication activity of Dr. Yordanov as fully sufficient in scope, at a high scientific level, and promoted sufficiently nationally and internationally. The presented evidence shows that Dr. Yordanov fulfils the national requirements for the academic position "Associate professor" in a professional field 5.3.

#### **4. Assessment of the candidate's pedagogical preparation and activity**

Chief Assist. Prof. Dr. Hr. Yordanov gives lectures in the discipline "Computer Networks" in German in the Department of Technology and Management of Communication Systems at the Faculty of Telecommunications at the Technical University of Sofia.

The teaching and pedagogical activity of Ch. Assistant Professor Dr. Yordanov is entirely in the field of competition.

#### **5. Major scientific and applied contributions**

The main scientific and applied contributions of the candidate in the submitted publications under the competition can be classified according to the following general criteria:

- 1) Creation of new methods, constructions, technologies.
- 2) Proving with new means of significant new aspects of existing scientific fields, problems, theories, hypotheses.

### **Scientific contributions**

The main scientific contributions are the following.

- modeling and verification of wireless channels for communication between integrated circuits based on integrated antennas [Г2], [Г4], etc .;
- development of new methods for design and production of efficient antennas [B1], [B3], [B4];
- creation of algorithms for research and visualization of electromagnetic fields [G1].

### **Scientific and applied contributions**

- modeling and research of experimental prototypes of integrated antennas related to increasing their efficiency [Г5], [Г6], [Г7];
- development and research of neural networks and signals in artificial intelligence systems [Г9], [Г10].

### **Applied contributions**

- proposed methods for calibration of microwave hygrometers [B9];
- adjustment of the polarization frequency of an antenna array with linear polarization [Г11], etc.

The importance of the contributions of Chief Assist. Prof. Dr Yordanov for science and practice is indisputable. The evaluation of the applicant's presented papers shows that the quantitative indicators and the minimum requirements of Law on the Development of the Academic Staff in the Republic of Bulgaria, as well as the Rules of the Law and that of the University of Sofia for obtaining the academic position of "Associate Professor" are fulfilled.

The applicant's scientific production of Dr. Yordanov is well known in Bulgaria and abroad.

### **6. Critical notes and recommendations**

I don't have critical remarks on the documents submitted by the applicant for participation in the competition for obtaining an academic position "Assoc. Professor". The provided documents are sufficient to evaluate his research and pedagogical activities.

My recommendation to Dr. Hr. Yordanov is to publish a monograph and a textbook.

### **7. Personal impressions**

I do not know personally Chief Assist. Prof. Dr. Hr. Yordanov, but the documents presented show that he is a well-trained professional and enjoys a well-deserved authority.

## 8. Conclusion

On the basis of the submitted scientific papers, their contributions, the fulfilment of the minimum national requirements, in my opinion the requirements of the Law on the Development of the Academic Staff in the Republic of Bulgaria, as well as the Rules of the Law and that of the University of Sofia I give a positive assessment of the candidacy of Ch. Assistant Professor Dr. Eng. Hristomir Hristov Yordanov for the academic position "Associate Professor" in the professional field 5.3 Communication and computer technology (Microwave technology and communications)

## II. OVERALL CONCLUSION

Based on the above, I recommend the scientific jury to propose to the competent body for the selection of the Faculty of Mathematics and Informatics at Sofia University "St. Kliment Ohridski " to choice **Ch. Assistant Professor Dr Eng. Hristomir Hristov Yordanov** to take the academic position of "Associate Professor" in the professional field 5.3 Communication and computer technology (Microwave technology and communications).

22.06.2022

Member of the Scientific jury:.....

/Prof. eng. Galina Cherneva, D.Sc./