

## OPINION

by Prof. Branko Dushkov Sotirov, PhD, University of Ruse "A. Kanchev », MTF, of the materials submitted for participation in the competition for holding the academic position "Associate Professor" in the field of higher education – 5. Technical Sciences, in professional field – 5.1 Mechanical Engineering, specialty - Methods, transducers and devices for measurement and control of physical-mechanical and geometric quantities

In the competition for associate professor, announced in the State Gazette, issue 50 / 15.06.2021 and on the website of TU-Gabrovo for the needs of the Department of Mechanical Engineering and Instrumentation at the Faculty of Mechanical Engineering and Instrumentation, as a candidate participates Tsanko Vladimirov Karadzhov, PhD.

### 1. Overview of the content and results in the presented publications

The candidate Dr. Tsanko Karadzhov participated in the competition with **36 publications**, of which:

- Monograph / habilitation thesis - **1** issue
- Publications in refereed and indexed publications - **12** issues, of which the scientific papers in publications with impact factor and impact rank - **3** issues;
- Publications in non-referenced editions - **21** issues;
- Teaching aids - **1** issue;
- Manual for laboratory exercises - **1** issue.

The content of the presented publications includes methods and measuring devices for measuring physical - mechanical and dynamic quantities, including measurement of noise, vibrations, temperature, illumination, time, pressure and angular velocity, measuring transducers and laser technologies.

Publications in refereed and non-refereed editions are subdivided into:

- Articles - **10** issues;
- Reports - **23** issues;

**According to the language in which they are written**, the publications are classified:

- In English - 18 pieces;
- In Bulgarian - 18 copies, including the monograph and both textbooks.

**By number of co-authors of the publications:**

**One** independent monograph;

**One** independent guide and one textbook with one co-author;

**Of the publications referenced and indexed In Scopus and Web of Science**, **seven** have one co-author, **three** have two, **one** has three and **one** publication has four co-authors;

**Of the remaining 21 publications** - **five** are independent; eleven have one author, **four** have two and **one** publication has three co-authors.

### 2. Reflection of the candidate's scientific publications in the scientific community (known citations):

I accept the reference for known **twelve citations of four publications** of scientific works of Dr. Karadzhov in references in Scopus and / or Web of Science editions, as well as **three citations** of three other his scientific works in three non-refereed journals with scientific review.

### **3. General characteristics of the candidate's activity**

#### **3.1. Educational-pedagogical activity** (work with bachelor, master and doctoral students)

The candidate Dr. Kardzhov gives lectures in three disciplines - Instruments for measuring physicomachanical quantities, Intelligent positioning systems and Processing of measuring signals. Conducts laboratory work in five disciplines related to the control and measurement of various physical quantities.

#### **3.2. Scientific and scientific-applied activity**

Dr. Tsanko Karadzhov has declared participation in 5 research and educational projects, three of which are international. He was the manager of a service contract, he also participated in projects under the Scientific Research Fund at the Technical University - Gabrovo.

Here his participation as "Researcher R2" under project BG05M2OP001-1.002-0023, Competence Center "Intelligent mechatronic, eco- and energy-saving systems and technologies" should be emphasized.

#### **3.3. Implementation activity**

Three official notes from companies for implementation activities related to activities to reduce noise and vibration in production activities in mechanical engineering and design and control of gears with an asymmetric profile are presented.

### **4. Contributions** (scientific, scientific-applied, applied)

I accept the author's reference for the contributions in the scientific works of Dr. Karadzhov with the specification that the contribution 1 in the thematic direction "*Methods for measuring noise and vibration*" should be referred to publication D.8.16. Karadzhov Ts., D. Pulov, N. Angelov, Method for diagnostics of a reducer by vibroacoustic measurements. I recognize 15 scientific and applied contributions in five thematic areas, including different methods and means of measurement and three applied contributions - two in the field of laser technology and one (contribution 3, publication G.8.15) from the thematic area "Measurement of illuminance, time and angular velocity

### **5. Assessment of the candidate's personal contribution**

I appreciate as indisputable the personal contribution of Karadzhov, PhD in the achieved serious results of the educational and pedagogical and research work. The achievements of him personally and the team in which he works are known, visible and significant, including the joint work with famous and serious co-authors from Bulgaria and abroad.

### **6. Critical remarks and recommendations**

It would be more convincing if the official notes from companies certifying implementation activities were issued on official company letterheads. In one of the official notes on the design and construction of a foundation to reduce noise and vibration, it is not clear who issued it.

Some documents submitted by the candidate for participation in the competition have not been signed, including the Information on the disciplines conducted by the candidate, including by the head of the respective department; the schedule is not specified either.

I would recommend Dr. Tsanko Karadzhov in the coming years to continue to publish in publications, referenced and indexed in world-famous databases of scientific information, including independent publications.

## 7. Personal impressions

I know the candidate Dr. Karadzhov vaguely, but I know very well the team in which he works and develops. It is known that it includes highly qualified specialists and experts in the field of metrology and quality. The created scientific environment, laboratories, experience and traditions in the field of metrology and metrological provision are a sure guarantee for the significance and quality of the achieved results. My personal impressions of my colleagues from the metrological community of TU Gabrovo have always been and remain based on sincere respect and esteem for what has been achieved over the years.

The above facts and data have allowed the candidate Dr. Karadjov to meet the minimum national requirements and the requirements of TU Gabrovo for the academic position "Associate Professor", as the number of points collected on indicators A and B **covers**, and on indicators D and E **exceeds** more of twice the minimum national and analogous requirements of TU-Gabrovo. These facts are convincing proof of the quality and significance of the results of the teaching, scientific, research and applied activities of Ch. Assistant Professor Dr. Tsanko Karadzhov.

## 8. Conclusion:

**In view of the above,  
I offer Tsanko Vladimirov Karadzhov, PhD  
to be elected "Associate Professor" in  
field of higher education - 5. Technical Sciences,  
professional field - 5.1. Mechanical Engineering,  
specialty - Methods, transducers and devices for measurement and control of  
physical-mechanical and geometric quantities.**

29.10.2021

Member of the jury: /signature/  
/ Prof. Branko Dushkov Sotirov, PhD /