OPINION

Member of the jury: **Prof. Dr. Eng. Vasil Dimitrov Dimitrov,**
Todor Kableshkov University of Transport – Sofia

on the works submitted for participation in a competition for gaining the academic position of "Associate Professor" in the area of higher education - 5. Technical Sciences,
professional field - 5.2. Electrical Engineering, Electronics, and Automation,
specialty - „Electrical Engineering" (Electromechanical devices, Electrical machines)

In the competition for the academic position of "Associate Professor", promulgated in State Gazette: issue 60/20.07.2021 and on the site of the Technical University of Gabrovo for needs of the Department of Mechanical Engineering, Computer Systems and Electrical Engineering at the Technical College – Lovech, as a candidate participates Senior Assist. Prof. Dr. Eng. Milko Ganchev Dochev – TC - Lovech.

1. Overview of the content and results in the presented works

The candidate has submitted in this competition a total of 83 scientific publications, one monograph, 3 books and 2 university manuals, as well as a list of 19 research projects. I don't have common publications with the candidate. 13 documents (in the form of official notes) for implemented developments are presented.

According to the Regulations for acquiring scientific degrees and gaining academic positions at the Technical University – Gabrovo (for science area 5. Technical sciences), the requirements in Groups: A (50 p.), C (100 p.), D (200 p.) and E (50 p.) must be fulfilled to gain the academic position of "Associate Professor". The total number of publications should be greater than 15, at least 4 of them do not to be co-authored, 1 publication with IF (WoS) / SJR (Scopus). A published book and a manual are also required.

After thorough examination of the documents submitted for the competitive selection procedure the conclusion can be drawn that these requirements were fulfilled and the scientific research activities of the candidate are entirely within the science area of this procedure:

Index A – 50 p.: The candidate holds the PhD degree for writing and defending a dissertation on the topic of "Dynamic regimes and technical diagnostics of hand-held power tools ", Certificate № TUS-EF83-AR1-024 / 02.06.2016. The documents submitted for this procedure include a list of the publications related to the dissertation.

Index C – 100 p.: The candidate submitted a monograph: Dochev, M. *Highly efficient electrical drives for power tools*, 160 pages, ISBN: 978-619-7442-35-9, Ed. Infovision - Lovech, 2019.

Index D - for his participation in the competitive selection procedure the candidate submitted two published books on the basis of his PhD dissertation: Dochev, M. *Methods and tools for technical diagnostics of electric machines and power tools,* 233 pages, ISBN: 978-619-7442-16-8, Ed. Infovision - Lovech, 2018; Dochev, M. *Methods and tools for technical diagnostics of electric machines,* 161 pages, ISBN: 978-954-683-591-8, Vasil Aprilov University Publishing house, 2019 (Index **D6 - 60 p**.).

Of the 83 scientific publications presented, 13 are in English, 6 of them – abroad. They are divided into groups D7 and D8, as follows:

D7 - Scientific publications in editions, referenced and indexed in world-renowned databases of scientific information – 2 (in co-authorship, the candidate is the second author) – papers, presented in international scientific conferences and published in editions, indexed in *Scopus*: Energy Procedia, Elsevier (TMREES-2014, Beirut, Lebanon – SJR = 0.474/2020) and IEEE Xplore Digital Library (ELMA-2017, Sofia, Bulgaria – SJR = 0.128/2020) – a total of **40** p.

D8 - Scientific publications in non-referenced journals with scientific reviewing or in edited collective volumes: 81 (18 in sole authorship, 25 publications with 2 authors, 25 - with 3, 9 - with 4 and 4 - with 5) – a total of **837,67** p.

The total number of points under **Index D** is **937,67** that considerably exceeds the requirements of the LDASRB and Technical University – Gabrovo.

Index E – for his participation in the competitive selection procedure the candidate submitted 35 citations of his publications. I accept 3 citations in scientific editions, referenced and indexed in world-renowned databases of scientific information (the article for citation No26 is not indexed in Web of Science or Scopus): Index **E12** – **30** p.

The remaining 32 citations are in non-referenced editions with scientific reviewing (with ISSN): Index **E14** – **64** p. The total number of points under Index E is **94** that considerably exceeds the requirements.

Although the requirements for gaining the academic position of "Associate Professor" do not include the indexes of Group F, the candidate has submitted an author's reference for participation in 19 contracts and projects for scientific research, 7 of which he has managed.

He also presented two university manuals: Dochev M. *Guide for the design of electric micromachines*, ISBN: 978-619-7442-04-5, Ed. Infovision - Lovech, 2018; Penchev P., M. Dochev, *Guide to educational practice. Part 1, Electropractice*, ISBN - 978-954-683-585-7, Vasil Aprilov Univ. Ed. - TU-Gabrovo, 2018.

2. General characterization of the activities of the candidate

2.1. Teaching practice and pedagogical activities (work with students and PhD students)

Milko Dochev was appointed as a Senior Assist. Prof. at the TC – Lovech in 1993. During the period 2003 - 2013 he was the Head of the Department of Electrical Engineering.

Individual reports on the teaching practice of the candidate during the last two academic years are submitted. He has delivered lectures and he is a leading lecturer of the subjects of "Electromechanical devices", "Electrical machines", "Electrical apparatus – I & II", "Design of electrical machines", "Low voltage switchgears" and others. The candidate has been a leader of 19 graduates. He has worked together with PhD students on 5 research projects and with students – on 12 research projects. It can be concluded that the pedagogical preparation and the teaching activity of the candidate are at a high professional level.

2.2. Scientific and applied research activities

The active scientific and scientific-applied research activities of the candidate are focused mainly on the following thematic areas:

- Analytical and experimental research of hand-held power tools and accessories – development and simulations of mathematical models, possibilities of control and regulation, energy efficiency, technical diagnostics, operation and repair, etc.;
- Development and realization of laboratory and training models and stands for study of electromechanical devices and household electrical appliances;
- Research, analysis and modernization of industrial and transport electrical drives, mechatronic systems, sewing machines, textile materials and technologies, etc.

2.3. Implementation activities

Milko Dochev has been a researcher (member of teams) and manager of many research projects that have been successfully completed with the implementation of the obtained results, which is also evident from the submitted official notes for implemented developments.

All the candidate's activities are a proof of his ability to conduct scientific research and scientific applied research and to work in a team.

3. Contribution (Scientific, Scientific-applied, Applied). **Significance of the contribution for science and practice**

The contributions are mainly scientific-applied and applied and are related to development of new methods, constructions and technologies; proving with new means of significant new aspects of already existing scientific problems and obtaining confirmatory facts:

- Mathematical models of electrical drives with different purposes have been developed, simulations and researches have been carried out for the purpose of optimal control, improvement of energy efficiency, determination of economic and reliability indicators;
- Diagnostic stands and devices have been developed and implemented, as well as methods for conducting tests and service and repair of electrical drive systems and hand-held power tools;
- Microprocessor control for various machines in industry has been developed and implemented;
- Laboratory stands and equipment have been developed with application in the educational process and research activities of students, PhD students and lecturers.

Based on the publications, the submitted books and university manuals, the active participation of the candidate in research projects and the implementation of the achieved results, I rate the contributions as significant. The necessary publicity and recognition of Dr. Milko Dochev by the professional scientific community has been achieved.

The contributions also have an educational aspect, because contemporary methods have been introduced in the training of students in the subjects related to electrical machines and apparatus.

4. Assessment of the candidate's personal contribution

The contribution is the result of the personal work of the candidate, which is evident from the great amount of scientific research presented in the publications and the books submitted, from his participation in a large number of research projects, from the implemented developments and from the citations of the scientific works in reputable editions, part of which accessible in Scopus.

5. Critical comments and recommendations

I do not have significant remarks on the presented scientific works submitted for this procedure.

Some of the points in the Reference for fulfilment of the minimum requirements are not calculated correctly (under Indicators D8 and E14).

The contributions are not shortly, exactly and clearly formulated and summarized as Scientific, Scientific-applied and Applied.

Given the publications, I would recommend that the candidate should participate in more scientific forums abroad in order to disseminate the results of his active scientific research work.

6. Personal impressions

I do not know Chief Assist. Prof. Dr. Eng. Milko Dochev personally. The general characteristic of the candidate is that he is a long-term lecturer with authority among colleagues and students, has a high level in research and development.

7. CONCLUSION:

Taking into account the above mentioned, I propose Senior Assist. Prof. Dr. Eng. Milko Ganchev Dochev to be selected as an Associate Professor in the
area of higher education - 5. Technical Sciences,
professional field - 5.2. Electrical Engineering, Electronics and Automation,
specialty - „Electrical Engineering” (Electromechanical devices, Electrical machines).

04.11.2021 Member of the Jury: /signature/

/Prof. Vasil Dimitrov, PhD/