

OPINION

of the materials submitted for participation in a loan competition of the academic position
"Professor" in a professional field 5.5 Transport, shipping and aviation, scientific specialty
"Ecology of transport equipment"

announced in SG no. No. 56 of 19.07.2022

with candidate Assoc. Prof. Ph.D. Eng. Zdravko Dinchev Ivanov

Member of the scientific jury Assoc. Prof. Ph.D. Eng. Simeon Penchev Iliev

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

- In order to meet the minimum requirements for academic position "Professor" according to the individual groups of indicators ("C.4", "D.7" and "D.8"), the candidate submitted a total of 42 publications, of which:

- 10 publications are in Scopus and/or Web of Science, meeting the requirements by indicators ("B.4"),

- 7 publications that are referenced and indexed in world-renowned databases Scopus and/or Web of Science with scientific information meeting the requirements for indicators ("D.7"),

- 25 publications that are in non-refereed peer-reviewed journals or edited collective volumes ("D.8"),

- The candidate has participated in national scientific and educational projects under the Scientific Research Fund - 3 pcs.;

- Supervised scientific research projects on FNI - 11 pcs. With the help of the supervised scientific research projects, the material base of the "TTT" department has been improved.

- The candidate is a member of the Territorial Organization of Scientific and Technical Unions (NTS) - Varna and the Polish Scientific Society of Combustion Engines - Polish Scientific Society of Combustion Engines (PTNSS).

The candidate's research and scientific-applied activity covers the quantitative indicators of the criteria for occupying the academic position.

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

During the last three academic years 2019/2020, 2020/2021 and 2021/2022 classroom learning activity consists of 1074.0 hours of lectures. The educational activity conducted outside the classroom is 494.7 hours.

The candidate was the scientific supervisor of a total of 4 doctoral students, one of whom defended, 71 diploma projects and reviewed 85 diploma projects. He also participates in joint scientific activity with students and graduates in the scientific projects he leads.

He has carried out two ERASMUS mobility trips in Romania and Turkey.

The educational and teaching and pedagogical activities of the candidate cover the quantitative indicators of the criteria for occupying the academic position.

3. Basic scientific and scientific-applied contributions.

Within the framework of the presented research work, results have been achieved, defining the following contributions:

Thematic direction 1. Noise and vibration environmental characteristics of internal combustion engines and transport equipment. [B.4-7], [D.7-1], [D.8-4], [D.8-12], [D.8-14], [D.8-19], [D.8-20], [D.8-22].

Thematic direction 2. Studies of the working process of an internal combustion engine and the factors influencing its development - additives to fuels, use of alternative fuels with improved

environmental characteristics. [Q.4-2], [Q.4-3], [Q.4-6], [Q.4-7], [Q.4-8], [Q.4-9], [Q.4-10], [D.7-2], [D.7-6], [D.8-2], [D.8-3], [D.8-5], [D.8-6], [D.8-7], [D.8-25].

Thematic direction 3. Study of fuel supply parameters for internal combustion engines, as the main factor determining the environmental characteristics of transport equipment in operating conditions. [B.4-1], [B.4-4], [B.4-5], [D.7-3], [D.8-1], [D.8-8], [D.8-15], [D.8-21].

Thematic direction 4. Reduction of carbon emissions by optimizing the design of internal combustion engines and studying the dynamic processes during vehicle movement. [D.7-4], [D.7-5], [D.7-7], [D.8-9], [D.8-10], [D.8-11], [D.8-13], [D.8-16], [D.8-17], [D.8-18], [D.8-23].

The formulated 22 contributions, according to their scientific significance, are divided into three groups:

1. Scientific contributions – 5 issues related to developed methodologies and methods for research and analysis of environmental and noise characteristics of internal combustion engines.

2. Scientific and applied contributions - 12 issues related to the use of fuels, combustion processes, the ecological characteristics of the engine and the creation of approaches, models and algorithms for their research.

3. Applied contributions - 5 numbers related to specific experimental studies, mainly on the noise characteristics and vibrations of specific objects - DVG.

No materials for pioneering activity (utility models and patents) are attached.

Data are presented for 27 citations of the candidate's scientific works in prestigious international journals referenced and indexed in world-renowned databases with scientific information.

I believe that the claimed contributions are the personal work of the applicant or were achieved with his participation.

4. Significance of contributions for science and practice.

The significance of the contributions in the candidate's scientific works is indisputable. They would find application in science and practice. The candidate has complied with the quantitative indicators of the criteria for occupying the academic position.

5. Critical notes and recommendations.

I have no critical notes and recommendations. I would make the following recommendation: Based on the collected research, one could consider intellectual property protection.

CONCLUSION

Based on the acquaintance with the presented scientific works, their importance, the scientific, scientific and applied contributions contained in them, I find it reasonable **to propose** Assoc. Prof. Dr. Eng. Zdravko Dinchev Ivanov to take the academic position "Professor" in the professional direction 5.5. Transport, shipping and aviation in the study discipline "Ecology of transport equipment".

Data: 18.11.2022 г.

MEMBER OF THE

Assoc. Prof. Ph.D. Eng. ЗДРАВКО ДИЧЕВ

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