

OPINION

on a competition for the occupation of the academic position "**PROFESSOR**" in Professional area **5.5. Transport, Shipping and Aviation**, study discipline "**Ecology of transport machinery**", for the department "**TTT**" of the **MTF**, announced in **SG No. 56/19.07.2022**, for the needs of the **Technical University - Varna**

with candidate/s: **Assoc. Prof. Dr. Eng. Zdravko Dinchev Ivanov**

Member of the scientific jury: **Prof. Dr. Rosen Petrov Ivanov**

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

The candidate submitted a total amount of 42 scientific publications for participation in the competition. Monograph is not presented. A group of 10 scientific publications, referenced in the Scopus database is presented. They are thematically united as "Research on the performance of engines with alternative fuels with improved environmental performance", and can be considered equivalent to a monographic work.

The scientific production, presented by the candidate, is grouped into several thematic areas:

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

2. Studies of the working process of an internal combustion engine and the factors influencing its development - fuel additives, use of alternative fuels with improved environmental characteristics. [B.4-2], [B.4-3], [B.4-6], [B.4-7], [B.4-8], [B.4-9], [B.4-10], [G.7-2], [G.7-6], [G.8-2], [G.8-3], [G.8-5], [G.8-6], [G.8-7], [G.8-25].

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

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

He was the supervisor of 1 PhD student, 11 Scientific projects and a participant in 3 other National projects in the field of transport technology.

Implementation and intellectual property protection documents have not been submitted.

The fulfillment of the minimum requirements of the law are summarized in the following table.

№	Groups of indicators	Number of points of the candidate
1.	Group of indicators A. At least 50	50
2.	Group of indicators B. At least 100	120,67
3.	Group of indicators G. At least 200	303.33
4.	Group of indicators D. At least 100	270
5.	Group of indicators E. At least 150	390

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

The candidate is a teacher with many years of teaching experience. He has lectured on a number of disciplines.

With the minimum required 120 p., the candidate has 1059 for the last years in Bachelor and Master Degree programs, with which he fulfills the requirements. He is the author and co-author of 3 textbooks and 2 manuals.

These data show that he is a built teacher and lecturer.

3. Main scientific and scientific-applied contributions

As content and distribution by group, I accept the contributions formulated by the candidate. Due to the limited volume of the opinion, I do not consider it necessary to repeat them. Of course, recommendations can be made for the unification and consolidation of some of the scientific and applied ones.

4. Significance of contributions for science and practice

Contributions in the candidate's works are significant and contain solutions to important and current problems. The quantitative indicators for the occupation of position "Professor" have been met, and in some groups, they are exceeded. Assoc. Prof. Ivanov is known in the scientific circles for his organization and participation in the ECO-Varna Scientific Conference. From the attached reference for citations of the candidate's works, it can be seen that he has 27 citations of 6 scientific works, and is good evaluated abroad. He is a member of 2 Organizing Committees and 2 scientific organizations.

5. Critical notes and recommendations

I have the following remarks and recommendations, regarding the submitted materials of the candidate:

- There is some inconsistency in terminology - for example "nozzles" and "injectors", and others;
- The candidate's works are scattered in too wide range of problems;
- Some of the contributions are not well formulated, such as 2.1 and 3.1. They indicate research performed, not contributions received;
- The candidate's independent publications are few;
- I recommend future expansion of publication in refereed Scientific journals.

CONCLUSION

From the above, it can be seen that the presented scientific works are significant. They contain sufficient quantity and quality of scientific and scientific-applied contributions. All criteria for occupation the position are met. There is international recognition of the candidate through publications in referenced databases worldwide. The candidate is a teacher with many years of experience and proven pedagogical qualities, and I believe that he fully meets the current requirements of the Law of the Development of Academic Staff.

Based on all of this, I **propose Assoc. Prof. PhD. Zdravko Dinchev Ivanov to take the academic position "Professor"** in the Professional direction **5.5 "Transport, shipping and aviation"**, study discipline **"Ecology of transport machinery"**, for the needs of **TU - Varna**.

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Member of the Scientific jury:

(Prof. K. Ivanov)