

OPINION



on a competition for the academic position "Associate Professor"
Professional field **5.5. Transport, Shipping and Aviation**,
study discipline **"Testing and Control of Transport Machinery"**
to needs of the "TTT" department of the MTF,
announced in SG No. 31/19.04.2022
with candidate **Ch. assistant Dr. Veselin Todorov Mihailov**

Member of the Scientific jury: **Prof. DSc. Rosen Petrov Ivanov**

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

The candidate submitted 35 scientific publications for participation in the competition. Monograph is not presented. A set of 10 scientific publications referenced in the Scopus database are presented. They are thematically united as "Basic methods for testing engines and transport machinery" and can be considered equivalent to a monographic work.

The overall presented scientific production of the candidate can be grouped into several directions:

1. Study of fuel supply parameters for internal combustion engines [B4.1], [B4.7], [B4.8], [G7.2], [G7.3], [G8.9], [G8.20];
 2. Noise and vibration environmental characteristics of internal combustion engines and transport equipment [B4.4], [B4.5], [G8.2], [G8.7], [G8.11], [G8.13], [D8.16];
 3. Factors affecting the development of the work process (additives to fuels, alternative fuels) [B4.2], [B4.6], [B4.9], [B4.10], [D7.1], [D8.1], [G8.17], [G8.19], [G8.22];
 4. General scientific research - other publications.
- Documents for participation in 19 research projects are submitted.
No implementation documents submitted.

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

The candidate is a teacher with many years of teaching experience. For the last three years, there is a teacher load in the field of the competition is more than 500 hours. He was the supervisor of 17 graduate students and worked with students and doctoral students on 4 projects.

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

3. Basic scientific and scientific-applied contributions

In general, I accept the contributions formulated by the author in the reference:

1. The performance of diesel LPG with modified fuels and nano additives [B4.2], [B4.6] is studied;
2. An approach is created and verified for researching the phases of fuel supply in a Common Rail system [B4.7];
3. A system for modeling the composition of the fuel when using biogas as fuel for LPG is created [B4.9], [D8.19];
4. A methodology is developed for the study of environmental and noise characteristics of engines in transient modes [G7.1];

5. A methodology is created for studying the influence of the parameters of the control pulse on the operation of low-resistance injectors for engines with forced ignition, [G7.2], [G7.3], [G8.20];

6. A new method is created to study the possibilities of exhaust gas recirculation technology for reducing NOx emissions [D8.17];

7. A method for studying the fuel supply through the stroke of the armature of gas electromagnetic valves [G8.2], [G8.9] is improved;

8. The noise characteristics of fuel electromagnetic valves from fuel equipment are investigated and a diagnostic parameter was determined for acoustic diagnostics based on harmonic analysis results [G8.7];

9. A research system is created to study the environmental characteristics of automobile engines [G8.1];

Contributions refer to the demonstration by new means of substantial new aspects of already existing scientific fields, the creation of new methods, and the obtaining of corroborating facts.

I believe that the contributions are the personal work of the candidate, of course with the participation of his other colleagues, including foreign ones.

4. Significance of contributions for science and practice

The contributions indicated are significant. The quantitative indicators for Assoc. Professor are met. The candidate is known in scientific community with his participation in the ECO-Varna Scientific Conference as an organizer and author of reports. From the attached reference for citation of the candidate's works, it can be seen that he has also been evaluated abroad.

5. Critical notes and recommendations

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

- there is inconsistency in terminology – for example “nozzles” and “injectors”.
- incorrect terms such as “cars” instead of “automobiles” etc. are used.
- the author's production is “situated” on many different topics.

CONCLUSION

I believe that the presented scientific works are significant. They contain sufficient quantity and quality of scientific and applied contributions. All criteria for holding the position are met. A part of the candidate's work has been published in renowned foreign journals, referenced in global databases. The pedagogical qualities of the candidate are proven, and I believe that he fully meets the requirements of ZRASB.

Based on all this, I propose Ch. assistant Dr. Veselin Todorov Mihailov to occupy the academic position “Assoc. Professor” in the Professional field 5.5 “Transport, shipping and aviation”, in the discipline “Testing and control of transport machinery”, for the needs of department TTT of Technical University of Varna.

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