

OPINION

by **Professor Nevena Stoyanova Mileva, PhD, Plovdiv University Paisii Hilendarski**

on the materials submitted for the Competition
for the academic position of **Associate Professor**
at Plovdiv University Paisii Hilendarski

in the field of higher education **5. Technical sciences**

professional field **5.1. Mechanical Engineering**

(**Mechanical Engineering Technology**)

In the competition for Associate Professor, announced in the State Gazette, issue 57 of 26th June 2020 and on the website of Plovdiv University Paisii Hilendarski, for the needs of the Mechanical Engineering and Transport Department at the Faculty of Physics and Technology, **Chief Assistant Professor Eng. Velko Slavchev Rupetsov, PhD**, from the Faculty of Physics and Technology of Plovdiv University Paisii Hilendarski has applied.

1. General presentation of the procedure and the candidate

On the grounds of Order No. P33-4124 of 24.08.2020 of the Rector of the Plovdiv University Paisii Hilendarski (PU) I was appointed for a member of the Scientific jury of the competition for the occupation of the academic position of **Associate Professor in PU** in the field of higher education **5. Technical sciences**, professional field **5.1. Mechanical Engineering**, scientific specialty **Mechanical Engineering Technology**, announced for the needs of the Department of Mechanical Engineering and Transport of the Faculty of Physics and Technology.

The presented set of materials on paper and on electronic media prepared by **Chief Assistant Professor Eng. Velko Slavchev Rupetsov, PhD** is in compliance with the Rules for the Development of the Academic Staff of PU.

In 1991 Chief Assistant Professor Eng. Velko Slavchev Rupetsov, PhD graduated from "Angel Kanchev" University of Ruse with a degree in "Complex mechanization and production lines in mechanical engineering". In 2015 he defended his doctoral dissertation "Increasing of the wear resistance of parts and tools for production equipment in the food industry". In 1995, Chief Assistant

Professor Eng. Velko Slavchev Rupetsov, PhD started working as an Assistant Professor at the Institute of Mechanical Engineering and Transport of Smolyan.

2. General characteristics of the of the research and scientific-applied activity of the candidate

The candidate Chief Assistant Professor Eng. Velko Slavchev Rupetsov PhD has presented 1 monograph and 27 scientific publications outside the doctoral dissertation, of which 7 are in publications, referenced and indexed by internationally acclaimed scientific databases (Scopus, Web of Science) and 20 scientific publications are in non-referred journals with scientific review or in edited collective volumes.

The candidate has presented an individual monographic work entitled "Increasing in the Durability of Machine Parts and Tools by Coating Deposition". The research presented in the monograph is aimed at increasing the life of parts and tools through the use of modern technologies for the application of hard and superhard coatings. An analysis of modern multilayer and nanocomposite coatings are made, PVD methods for applying hard coatings are described. Data from the research study on the physico-mechanical and tribological characteristics of the developed innovative coatings are presented. Based on the research results described in the monograph, a number of new multilayer and multicomponent coatings can be successfully applied in practice.

The monograph is 128 pages long. It was published by Paisii Hilendarski University Publishing House, Plovdiv in 2020 with ISBN 978-619-202-560-1 and was reviewed by Prof. Georgi Atanasov Mishev, DSc, Eng. and Assoc. Prof. Ruslan Angelov Dikov, PhD, Eng. The bibliography consists of 148 literary sources, of which 15 are scientific works of Chief Assistant Professor Eng. Velko Slavchev Rupetsov PhD. The presented scientific work meets the requirements for a monograph. The content corresponds to the theme of the competition.

Scientific publications can be classified as follows:

- **11** in Bulgarian, **15** in English and **1** in Russian;
- in referenced journals with **IF** or **SJR** – **2** (1 publication in **Bulgarian Chemical Communications** with **SJR (2016)=0.148** and **IF (2016)= 0.238**, 1 publication in **Journal of the Balkan Tribological Association** with **SJR= 0.212**);
- in peer-reviewed scientific journals – **4**
- in proceedings of international conferences abroad – **6**
- in proceedings of international conferences in Bulgaria – **3**
- in proceedings of national conferences and congresses in Bulgaria - **12**

The candidate is the only one author of 4 scientific papers, and 23 of the publications have two or more co-authors. In 8 publications the candidate is the first co-author.

The candidate in the competition covers and in certain groups of indicators (in groups Γ and Δ) exceeds the minimum national requirements:

- defended doctoral dissertation "Increasing of the wear resistance of parts and tools for production equipment in the food industry" (indicator **A - 50 points**);
- monograph (indicator **B -100 points**);
- Published book based on a defended thesis for the award of the educational and scientific degree "doctor" and **27 scientific publications** (group of indicators Γ -**253,5 points**);
- **24** presented citations of papers (group of indicators Δ - **92 points**), of which **3** citations in publications, referenced and indexed by internationally acclaimed scientific databases, **20** citations in monographs and collective volumes with scientific review and **1** in non-referred journal with scientific review.

Chief Assistant Professor Eng. Velko Slavchev Rupetsov, PhD has participated in four research projects as a member of the research team, three of which were funded by Plovdiv university scientific research fund and one – by fund "Science" of UFT - Plovdiv. In 2019 he participated in the National Program "Young Scientists and Postdoctoral Students".

The candidate is the coordinator of the Erasmus + program for the Faculty of Physics and Technology in Smolyan. He took part in EU program Erasmus+ for lecturers' mobility in Politehnica University of Bucharest, Romania from 15.04.2018 to 21.04.2018.

3. **Assessment of educational and pedagogical activity and preparation of the applicant**

The candidate has 25 years of teaching experience. He has participated in the development of curricula for the specialty "Mechanical Engineering and Technology" for Bachelor's degree, Bachelor's degree after Professional Bachelor's degree and Master's degree for specialists and non-specialists. He has developed 22 curricula of disciplines in the field of the competition. Chief Assistant Professor Eng. Velko Slavchev Rupetsov, PhD conducts lectures and exercises in the specialties: "Mechanical Engineering and Technology" (Bachelor's degree), "Automotive Engineering" (Bachelor's degree) and "Mechanical Engineering and Technology" (Master's degree). He participated in the working teams that prepared the documentation for program accreditations of professional field 5.1. Mechanical Engineering.

Despite the fact that the minimum national requirements for the academic position "Associate Professor" do not define a requirement for a textbook Chief Assistant Professor Eng. Velko Slavchev Rupetsov, PhD has presented one textbook and two training manuals. He is a co-author of the text-

book "Mechanical Engineering Technology, Technological Processes for the Processing of Types of Parts and Assembly of Products" for students studying "Mechanical Engineering and Technology". He is a co-author of two university training manuals: "Manual for Laboratory Exercises in Mechanical Engineering Technology, Part One." and "Exercises in Engineering Graphics (Workbook)". He has developed an electronic course "Automated development of technical documentation with AUTOCAD" for students from the Faculty of Physics and Technology at Plovdiv University "Paisii Hilendarski".

Under his leadership, 32 graduates have defended their degree theses and he has reviewed the theses of 33 graduates. He has 4 collaborative publications with students. He has supervised 2 students studying "Mechanical Engineering and Technology" and "Automotive Engineering" at the Polytechnic University of Bucharest, Romania under the "Erasmus+" program. He has participated as an academic mentor of 6 students under the project "Student Internships".

All this shows that Chief Assistant Professor Eng. Velko Slavchev Rupetsov, PhD has excellent skills for working with young people and proves his high professional qualities as an academic lecturer.

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

I accept the formulated contributions in the scientific production. They have scientific-applied and applied character and can be referred to:

- Creation and research of the properties of multilayer, multicomponent and innovative nanolaminate coatings in order to increase the wear resistance of metal surfaces.
- Research and experimental demonstration that the specific wear intensity has a relatively constant value, which depends mainly on the quality of the surfaces but not on the conditions of their loading.
- Determination and study of the main factors influencing the positioning accuracy of the systems for rectilinear motion in the production equipment.
- Design and construction of equipment for improvement of production equipment and technologies in the field of mechanical engineering.
- Design and manufacture of stands that can be used for both research work and learning process.

The presented 24 citations show the recognition of the candidate by the scientific and professional community in Bulgaria and abroad.

For the purposes of the competition Chief Assistant Professor Eng. Velko Slavchev Rupetsov, PhD has presented 4 documents (in the form of official notes and certificates) for implemented in practice research results.

5. Assessing the personal contribution of candidate

The analysis of the scientific production of Chief Assistant Professor Eng. Velko Slavchev Rupetsov, PhD gives me reason to believe that the authenticity of the contributions is undoubted and they are his personal work. Despite the collective nature of most of the scientific developments, the personal contribution of the candidate is clearly expressed. I believe that the scientific-applied and the applied contributions of Chief Assistant Professor Eng. Velko Slavchev Rupetsov, PhD are sufficient to meet the requirements for occupying the academic position of "Associate Professor".

6. Critical remarks and recommendations.

I think that the contributions can be summarized.

I have the following technical remark to the reference presented by the candidate for fulfilment of the minimum national requirements: publication with number 5 in group Γ , indicator 7 has 5 co-authors. Points must be reduced from 10 to 8.

I would recommend Chief Assistant Professor Eng. Velko Slavchev Rupetsov, PhD to expand his publishing activity abroad and to publish in renowned international scientific journals. I have no remarks on his pedagogical activity.

7. Personal impressions

I have known Chief Assistant Professor Eng. Velko Slavchev Rupetsov, PhD since 2013. My personal impressions of our cooperative work show that he is an excellent professional, a respected teacher and a correct colleague. I claim that the candidate has the necessary teaching and research experience and the potential to occupy the academic position of "Associate Professor" in the announced competition.

CONCLUSION

The documents and materials presented by **Chief Assistant Professor Eng. Velko Slavchev Rupetsov, PhD** meet all the requirements of Law for the Development of the Academic Staff in the Republic of Bulgaria (LDASRB), the Regulations for implementation of LDASRB and the respective Regulations of Plovdiv University Paisii Hilendarski.

The applicant in the competition has submitted a sufficient number of scientific papers published after the materials used in the defence of educational and scientific degree "Doctor". His scientific developments have practical applicability and are aimed at solving problems in production practice.

Some of them are directly oriented to the educational work. The scientific and teaching qualifications of **Chief Assistant Professor Eng. Velko Slavchev Rupetsov, PhD** are unquestionable.

After having acquainted with the materials and scientific works presented in the competition, the analysis of their significance, the scientific and applied contributions contained in them and the educational and pedagogical activity of the candidate I find it justifiable to give my **positive opinion** about the election of **Chief Assistant Professor Eng. Velko Slavchev Rupetsov, PhD** for the academic position "Associate Professor" at the University of Plovdiv "Paisii Hilendarski" in the professional field: **5.1. Mechanical Engineering**, speciality: **Mechanical Engineering Technology**.

05.11.2020 г.

The opinion was prepared by:.....

(Prof. Nevena Mileva, PhD)