

OPINOIN

by competition for the academic position of "Associate Professor" in the field of higher education 5. Technical sciences, professional direction, 5.6. Materials and Materials Science, Faculty of Mechanical and Precision Engineering, Department of Materials Science and Mechanics of Materials at Technical University – Gabrovo

announced by the Technical University - Gabrovo in the "State Gazette" issue No. 54 of 06/25/2024 with a single candidate Ch. Assistant Professor Vladimir Petrov Todorov, Ph.D.

Member of the scientific jury: Ass. Prof. Ph.D. Eng. Vladimir Petrov Dunchev

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

Ch. assistant professor Vladimir Petrov Todorov, participated in the competition with 29 scientific papers, incl. Dissertation abstract for educational and scientific degree "Ph.D." and two textbooks. All works deal with issues related to the theme of the competition.

Scientific works are distributed as follows:

Group A.1: - Abstract of a dissertation work for the award of educational and scientific degree "Ph.D." on the topic "Influence of the carbide phase on the mechanical and operational characteristics of bainite cast irons";

Group B.3. - Habilitation work - monography on the topic: "Improving the mechanical characteristics and operational behavior of iron-aluminum bronze with β -transformation";

Group Г.7. – Scientific publications in journals that are referenced and indexed in world-renowned databases with scientific information (Web of Science and/or Scopus); Scientific publication in non-refereed peer-reviewed journals or in edited collective volumes;

Group Г.8. – 19 pcs. scientific publications in non-refereed peer-reviewed journals or in edited collective volumes.

Peer-reviewed publications can be classified as:

- Published scientific work - Monography.
- Scientific publications in journals that are referenced and indexed in world-renowned databases with scientific information (Scopus and Web of Science) - six issues. Three of them are in the journals Material, Metals and Processes, published by MDPI, which have a high IF for technical publications – 3.4, 2.9 and 2.753, and the other three in journals refereed and indexed in Scopus (with SJR).
 - Ch. assistant professor Ph.D. Vladimir Petrov Todorov is the only author of 5 scientific papers, including the presented habilitation thesis - Monography.
 - Co-authored publications – 21, of which the candidate is the first author in 2.

Group D - Evidence of the level of the candidate's scientific production is the citations - 42 in number in indexed editions, which repeatedly fulfills the minimum requirements under indicator D.

The candidate participates in the competition with two co-authored textbooks as follows: "Metallurgy and heat treatment. Part I Metallurgy", 2024 and "Metallurgy and Heat Treatment Part II Heat Treatment of Metals", 2022;

The candidate's scientific works can be referred to the following thematic areas: 1) Improvement of the mechanical characteristics and operational behavior of iron-aluminum bronze with β -transformation [B.3, Г.7.4, Г.8.2, Г.8.3]; 2) Electron beam welding of dissimilar metals and alloys [Г.7.1 – Г.7.3, Г.7.6, Г.8.5]; 3) Examination of dental composites subjected to photopolymerization [Г.7.4]; 4) Study of the structure, mechanical characteristics and

operational behavior of carbide-bainite ductile iron [Г.8.4, Г.8.7, Г.8.9 – Г.8.12, Г.8.17]; 5) Improvement of operational behavior and mechanical characteristics of medium-carbon low-alloy steels through heat treatment processes [Г.8.1, Г.8.6].

2. General characteristics of the applicant's activity

2.1. Educational and pedagogical activity (work with students and doctoral students)

The candidate held the position of assistant in the Department of Mechanical Engineering and Technology in 2008, and since 2016 he has been the Ch. assistant professor in the Department of Materials Science and Mechanics of Materials at the Faculty of Mechanical and Precision Engineering at the Technical University - Gabrovo. Ch. assistant professor Vladimir Petrov Todorov gave lectures on six disciplines that are directly related to professional direction 5.6 Materials and materials science: 1) Materials science; 2) Materials science and technology of engineering materials; 3) Casting of the materials; 4) Heat treatment of metals; 5) Resource-saving technologies in material processing; 6) Materials technology and materials science. The candidate led exercises in 7 disciplines: 1) Materials science; 2) Materials science and technology of engineering materials; 3) Casting of the materials; 4) Heat treatment of metals, 5) Resource-saving technologies in material processing, 6) Technology of materials and materials science, 7) Non-metallic materials. Ch. assistant professor Todorov is the supervisor of 22 graduates who have successfully defended their diplomas, 18 in the "Bachelor" degree and 4 in the "Master" degree.

The two textbooks are written at a high scientific level and reflect the current state of materials science and heat treatments.

2.2. Scientific and scientific-applied activity

Ch. Associate Professor Vladimir Todorov participated in 6 national research projects, 3 of which were financed by the "Innovations and Competitiveness" operational program. During years of scientific development at the Technical University - Gabrovo, Ch. Assistant VI. Todorov has taken part in 10 research projects funded by the University Fund "Scientific Research"

2.3. Activity on modernization of the laboratory base

The activity of modernization of the laboratory base of ch. assistant professor Ph.D. Todorov, is related to the design and manufacture of a stand for dry friction wear and the modernization and renovation of an optical microscope, a heat treatment furnace and a combined hardness tester for hardness testing by the Brinell and Vickers methods. The modernization of the existing equipment shows the activity of ch. assistant professor Todorov related to the scientific and scientific-applied activity in the department.

3. Contributions (scientific-applied, applied)

The candidate participates in the competition with declared scientific-applied and applied contributions. The scientific-applied contributions are divided into 5 thematic directions: "Improvement of the mechanical characteristics and operational behavior of iron-aluminum bronze with β -transformation", "Electron-beam welding of dissimilar metals and alloys", "Research of dental composites subjected to photopolymerization", "Investigation of the structure, mechanical properties and service behavior of carbide-bainite ductile irons" and "Improvement of the service behavior and mechanical properties of medium carbon low alloy steels by heat treatment processes". Applied contributions are divided into 4 thematic areas. All formulated contributions are in the field of the competition, faithfully reflecting the results achieved in the scientific works with which the candidate participates. This gives me reason to accept the contributions thus formulated.

4. Evaluation of the candidate's personal contribution

Publications in journals referenced in Scopus and Web of Science (six in number) prove the level of research presented. The personal participation of the candidate can be judged by the number of articles in which he is the first author, 7 in number, as well as his independent ones - 5 pcs. These circumstances give me reason to assume that the submitted contributions are the result of the candidate's active work.

5. Critical notes and recommendations

I did not notice any fundamental and essential errors in the presented documents. I recommend to the candidate: 1). To continue its activity of renovating the existing equipment; 2). To supplement his knowledge and skills for working with the existing new equipment in the department; 3). To continue the trend of publishing scientific works in world-renowned refereed and indexed journals.

6. Personal impressions

I have known Ph.D. Vl. Todorov for more than 10 years. He is distinguished by a clear mind, responsibility for his duties and diligence. Based on the scientific studies in which Ch. assistant professor Ph.D. Vl. Todorov participates, I can say that he has a high qualification in the field of materials science and heat treatment.

7. Conclusion:

Bearing in mind the above, I propose Ch. assistant professor Ph.D. Vladimir Petrov Todorov, to be elected as an "associate professor" in the field of higher education - 5. Technical sciences, professional direction - 5.6. Materials and Materials Science, Faculty of Mechanical and Precision Engineering, Department of Materials Science and Mechanics of Materials at Technical University - Gabrovo

10/21/2024

Jury member: /signature/

/ Assoc. Prof. Ph.D. Vl. Dunchev /