

OPINION

authored by Professor Iliya Slavov Zhelezarov, Ph.D.

on the materials submitted for participation in competition for awarding the academic position of “Professor”, in higher education area 5. Technical sciences, professional field - 5.6. Materials and Materials Science, scientific specialty – “Materials Science and Technology of Engineering Materials”

Angel Petrov Anchev, Associate professor, Ph.D. in the department “Materials science and mechanics of materials” at the Faculty of “Mechanical Engineering” is the candidate in the competition for awarding the position of Professor, announced in the State Gazette, issue 47 from 24.06.2022, and on the website of the Technical University of Gabrovo.

1. General description of content and results in the submitted materials

Associate prof. Angel Anchev, Ph.D. has submitted all the necessary documents in accordance with the requirements of the Act for Academic Staff Development in the Republic of Bulgaria, the Rules for its implementation and the Rules for Acquisition of Academic Titles and Positions at the Technical University of Gabrovo for participation in the competition for awarding the academic position of Professor. The submitted materials include 10 scientific publications from group “B” in international journals with impact factor, equivalent to monograph entitled “Improving the performance behavior of metallic materials subjected to diamond burnishing by managing the Surface Integrity characteristics”, 11 scientific publication from group “T” in journals with impact factor, 1 scientific publication from group “T” with SJR of SCOPUS, 15 scientific publications in non-referenced editions with scientific reviewing or in edited volumes of collections from group “T” , 4 publications from group “E” – textbooks and study guides in the thematic area of the competition.

The quantitative indicators of the criteria for awarding the academic position of Professor have been complied with and correspond to the stipulations of the Rule for Acquisition of Academic Titles and Positions of TU-Gabrovo.

The great number of citations of the publications in scientific editions, 160 of which found in publications referenced and indexed in world renowned data bases, attest to the quality of the research and applied research activity of the candidate.

2. General description of candidate’s activity

2.1. Teaching and pedagogical activity

Assoc. Prof. Angel Anchev began his teaching career as assistant professor in the department of “Chemistry and Ecology” of TU-Gabrovo in 2004. In 2005 he was appointed Chief Assistant

Professor in the department of “Chemistry and Ecology” and in 2011 he continued to hold the same position in the department of “Technical Mechanics”. In 2016 he was awarded the position of Associate Professor in the department of “Technical Mechanics” and in 2020 he was appointed Head of the Department of “Materials Science and Mechanics of Materials”, Faculty of Mechanical Engineering. Assoc. prof. Angel Anchev has read lectures in 6 disciplines, 3 of which he has developed himself. The disciplines are related to the thematic area of the announced competition for awarding the academic position of Professor.

The teaching and pedagogical activity of the candidate meets the requirements for awarding the academic position of Professor at TU-Gabrovo.

2.2. Research and Research applied activity

The candidate Angel Anchev participates in research projects financed specifically from the budget, the National Research Fund and the Operational Program “Science and Education for Smart Growth”. Assoc. prof. Angel Anchev is a leading researcher in the team of laboratory “Energy Saving Technologies for Extending the Life Cycle and Increasing Operational Safety”, laboratory complex “Energy Saving Systems and Technologies for design and production of High Tech Products” at the Center of Competence “Smart, Mechatronic, Echo- and Energy Saving Systems and Technologies” where he performs applied research on assignments from the business sector.

2.3. Implementation activity

The results of the teaching and pedagogical, research and research applied activities of Assoc. Prof. Angel Anchev have been implemented in the learning process and the seminar classes with the students. The candidate in the competition has participated in the commissioning of the technical and measuring equipment of laboratory “Energy Saving Technologies for Extending the Life Cycle and Increasing Operational Safety”, laboratory complex “Smart, Mechatronic, Echo- and Energy Saving Systems and Technologies” at the Center of Competence “Smart, Mechatronic, Echo- and Energy Saving Systems and Technologies”, as well as in the preparation of the documentation for the accreditation of the laboratory according to the requirements of the standard ISO/IEC 17025 submitted to the Bulgarian Accreditation Service.

3. Contributions. Significance of contributions for science and practice

In the category “Proving essentially new aspects of already existing scientific fields, problems, theories, hypotheses by employing entirely new means”, the candidate Assoc. Prof. Angel Anchev provides 3 contributions related to increase in fatigue life from the useful residual compressive stresses in the surface and subsurface layers of structural elements; control and prediction of fatigue behaviour by means of SI control through combinations of optimal process parameters, obtained through developed optimization procedures; experimentally proved hypothesis of strengthening of materials under the action of cyclic deformation impact, to maximize the fatigue limit, upon reaching a stabilized cycle of the surface. In the field of "Creation of new, classifications, methods, approaches, algorithms, constructions, models" 18 research and 4 applied research contributions related to Surface integrity, optimization of values of technological

parameters of processes, constitutive models for strengthening surface and subsurface layers, methods and models for surface plastic deformation have been defined; results of the application of static methods for surface machining and others have been analyzed. In the category “Obtaining and proving new facts” 18 research applied and applied contributions related to establishing the technological parameters for surface plastic deformation to improve SI characteristics (micro-hardness, height parameters and surface texture shape parameters), experimental studies to determine the optimal parameters of technological processes, improved performance characteristics after surface plastic deformation and others have been defined. I accept the applied research contributions submitted by the candidate Assoc. prof. Angel Anchev for participation in the competition on the ground of their particular importance for “Materials and Materials Science”, a scientific field of major priority for TU- Gabrovo.

4. Evaluation of candidate’s personal contribution

The results of the scientific and applied research activity of Assoc. Prof. Angel Anchev, Ph.D., presented at prestigious national and international forums and published in editions indexed in world renowned data bases make me to believe that the aforementioned contributions are the candidate’s personal achievements.

5. Critical remarks and recommendations

I have no particular remarks or objections concerning the materials submitted by Assoc. Prof. Angel Anchev and my assessment of them is entirely positive.

6. Personal impressions

I am completely familiar with Assoc. Prof. Anchev’s research and educational work as my colleague in the Faculty of Mechanical Engineering and as a researcher in the team of the Center of Competence “Smart, mechatronic, echo- and energy saving systems and technologies” as well as his work in the laboratory complex “Energy saving systems and technologies for design and production of high tech products”, laboratory “Energy saving technologies for extending the life cycle and increasing operational safety”. His ability to work in a team in carrying out research and educational projects deserves a special mention.

7. Conclusion

Drawing upon the content of the materials submitted for participation in this competition, the topicality and significance of accomplished scientific and applied research contributions, I propose to the esteemed jury that Assoc. Prof. Angel Petrov Anchev, Ph.D. be awarded the position of “Professor” in the higher education area of 5. Technical sciences, professional field 5.6. “Materials and Materials Science”, scientific specialty “Materials Science and Technology of Engineering Materials”.

Gabrovo, 8 November, 2022

Member of the scientific jury: /signature/

/Prof. Iliya Zhelezarov, Ph.D./